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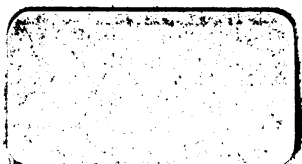
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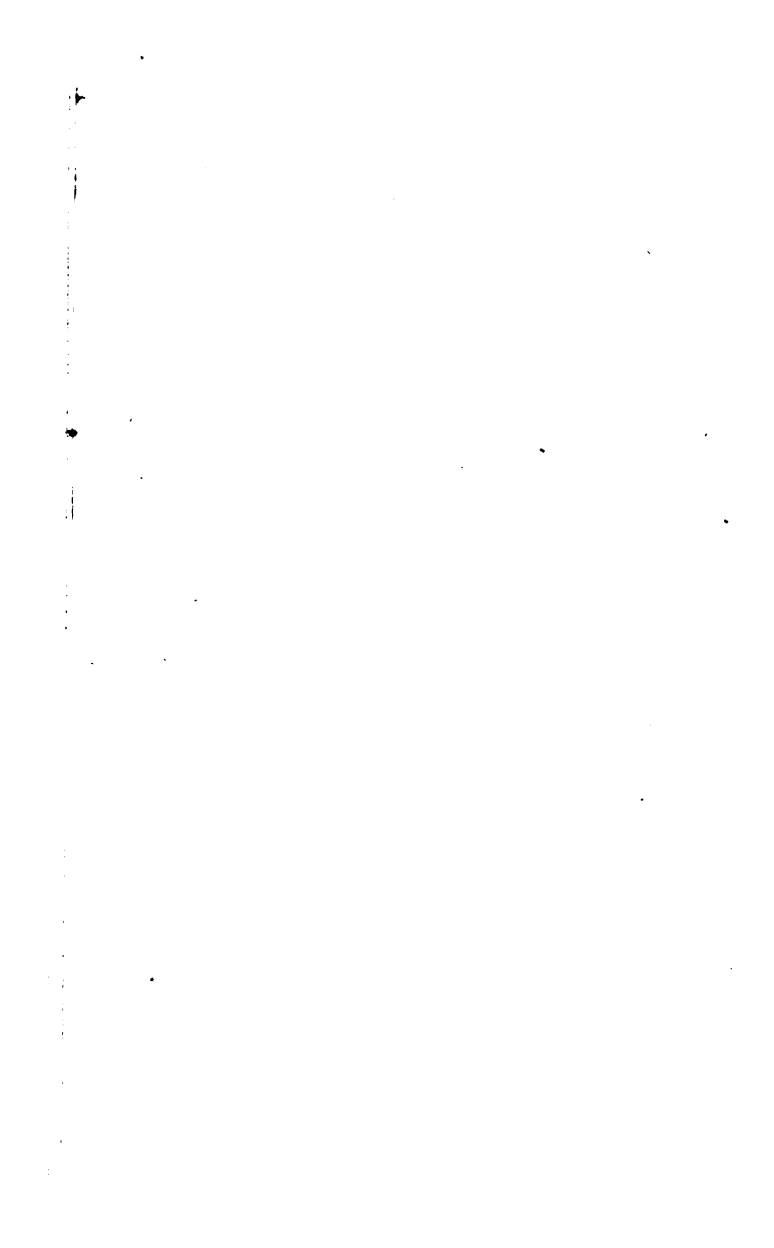
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Wilkins
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THE
GEOGRAPHY
OF
NEW SOUTH WALES:

PHYSICAL, INDUSTRIAL, AND POLITICAL.

BY

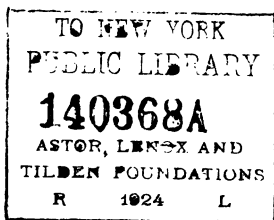
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PREFACE.

IN the compilation of this little work, the writer has constantly had in view the production of a treatise on the geography of the colony, which, while not altogether devoid of interest to the general reader, should be specially adapted for the use of Teachers and the higher classes in schools. It is, therefore, essentially of a popular character. An attempt is certainly made to exhibit the Geography of New South Wales as fully and completely as the geography of his native land is taught to an English boy, in a well-conducted primary school in the mother country; but no claim is set up to original scientific research, nor even to strictly scientific treatment of the subject. Independently of other important considerations, the difficulties in the way of treating the geography of the colony in a thoroughly scientific manner, are, in the present state of our knowledge, well nigh insurmountable. Even in procuring material for this work, much trouble was experienced in the verification of

some of the statements; and, owing to the scantiness of published sources of information, the writer is prepared to admit that considerable modifications may hereafter be found necessary in some of his positions.

It is proper to mention that, in a few instances, an extended meaning has been given to names in current use. In excuse for this procedure, it may be urged that the writer was compelled either to adopt such a course, or invent new designations for certain physical features. The inexpediency of the latter alternative is obvious. Aboriginal names have been preferred whenever their retention was not likely to cause mistake or confusion. Such names, in the course of another half century, will probably be the sole relics of the original possessors of the country: and there seems to be a peculiar appropriateness in preserving the native appellations of physical features. The names of towns could, with like propriety, indicate the presence of the intruding race.

The principal authorities consulted by the writer are the work of Strzelecki, and the valuable Reports of the Rev. W. B. Clarke. To the latter gentleman he is further indebted for additional information, kindly given in reply to special inquiries. His thanks are also due to the Honorable the Secretary for Lands,

for the gift of a map of the colony corrected to the latest date, and containing the newest information. Much assistance was likewise rendered by the Publisher of this volume, in enabling the writer to consult various works of reference on similar and collateral subjects.

Sydney, 6th January, 1863.



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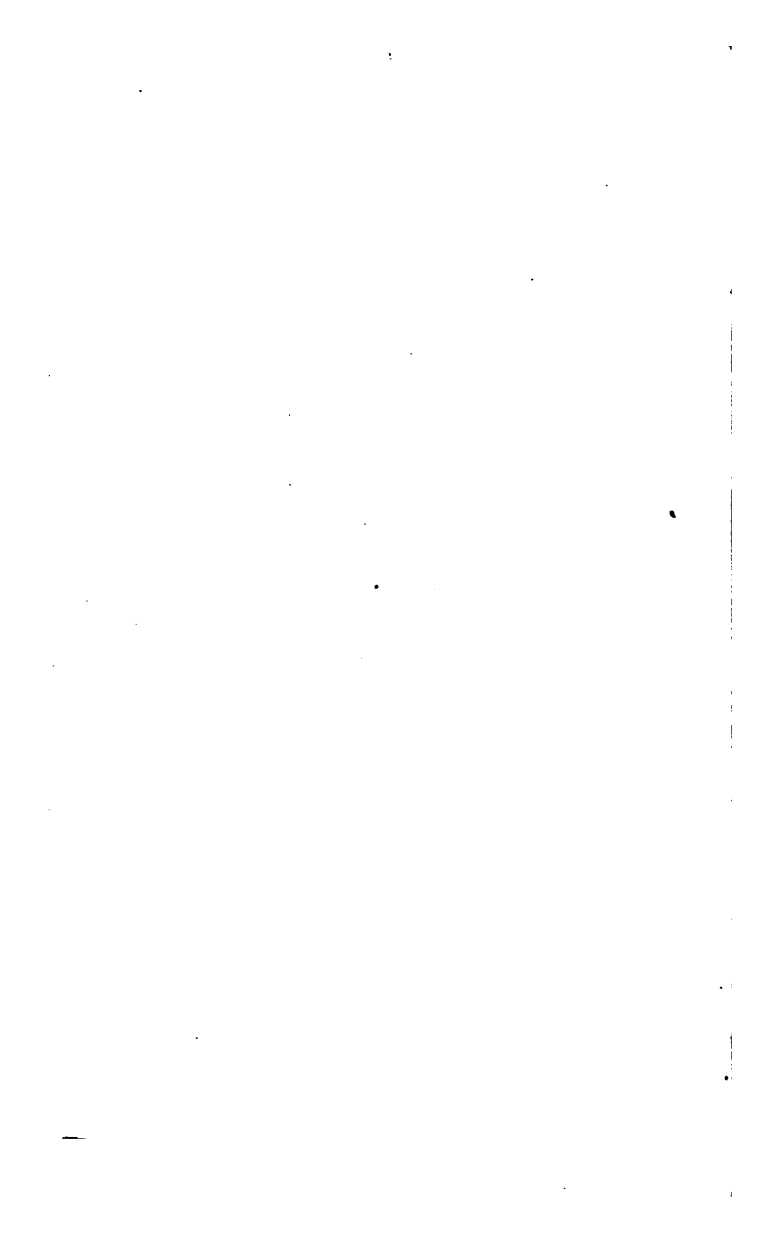
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GEOGRAPHY

OF

NEW SOUTH WALES.

CHAPTER I.

OUTLINE.

1. NAME.—The name of New South Wales was originally conferred upon the whole of the eastern division of Australia by its first explorer, Captain Cook, who, when examining the coast on his first voyage in 1770, fancied its aspect resembled that of South Wales. But the title is now restricted to the territory lying along the southern half of the east coast.

2. POSITION.—In general terms, New South Wales may be said to lie between the parallels of 28° and 37° south latitude ; and between the 141st and 154th meridians of east longitude. As regards distance from the equator, it may be compared to Cape Colony, Chili, and the lower basin of the La Plata, in the southern hemisphere ; and with the south of Spain,

Italy, and Greece, which occupy similar positions on the north of the line. To these may be added the north of Africa, Asia Minor, Syria, Persia, China, and the southern portions of the United States, all of which countries lie in a corresponding latitude, north of the equator. The extreme points are—

<i>North</i> —Point Danger	Latitude, 28° 10' S.
	Longitude, 153° 29' E.
<i>East</i> —Cape Byron	Latitude, 28° 27' S.
	Longitude, 153° 37' E.
<i>South</i> —Cape Howe	Latitude, 37° 28' S.
	Longitude, 150° 8' E.

It is evident, therefore, that New South Wales extends over about nine degrees of latitude, and about twelve and a half degrees of longitude.

3. **BOUNDARIES.**—New South Wales is bounded on the North by Queensland, from which it is separated by Macpherson's Range, the Dividing Range, the Dumaresq River, the Karaula River, and the 29th parallel of south latitude; on the East, the boundary is formed by the Pacific Ocean; on the South, it is bounded by Victoria, being divided from that colony by a line drawn from Cape Howe to the head of the River Murray, and also by that river; and on the West, it is bounded by South Australia, the line of separation being the 141st meridian of east longitude.

4. **FORM AND DIMENSIONS.**—If lines were drawn upon a map of New South Wales so as to connect its

extreme points, a space would be enclosed having the shape of a trapezium. It would also be seen that the southern boundary is the most irregular, and deviates most widely from a straight line. The extreme points are Point Danger, the most northern point on the coast; Cape Howe, the most southern; the intersection of the Murray River by the 141st meridian; and the intersection of the same meridian with the parallel of 29° S. The greatest length of New South Wales is 900 miles, and is measured on a line drawn from Point Danger to the point where the meridian of 141° E. intersects the course of the Murray. The average length, however, from north to south, does not exceed 500 miles. The extreme breadth, measured from Cape Howe to the point of intersection of the parallel of 29° S. with the 141st meridian, is somewhat less than 850 miles, while the average breadth, from east to west, reaches about 500 miles. It is estimated that New South Wales occupies a superficial area of about 325,000 square miles. This country is therefore nearly three times the size of Great Britain and Ireland, and is considerably larger than any European State, except Russia. It is one and a half times the size of Turkey, or of Spain and Portugal, and equal in area to France, together with Belgium, Holland, and all the minor German States. New South Wales is also nearly equal in extent to Canada.

5. COAST LINE.—The length of the coast line, including the principal bays and estuaries, is about 800 miles. The proportion of coast to surface is 1

mile of the former to 325 of the latter. In England the proportion is 1 in 82, and in France, 1 in 136 miles. Generally speaking, the coast presents a bold and rocky front to the ocean, often rising into cliffs two or three hundred feet in elevation. Frequently the elevated part of the coast alternates with low sandy beaches, varying in extent. Between Point Danger and Cape Byron the coast trends south-east; thence to Sugarloaf Point, south by west; from that point to Twofold Bay, S.S.W.; and thence to Cape Howe, east and south. Few indentations or projections of conspicuous size occur, although there are numerous small bays and harbours; and along the whole coast line comparatively few rocks or shoals are to be found, but deep water exists everywhere.

6. PROJECTING POINTS.—The principal projections of the land are the following;—

Point Danger—Lying a little to the south of the 28th parallel.

Cape Byron—Named after the unfortunate Admiral Byron; it lies in E. Longitude $153^{\circ} 37'$, and is consequently the most easterly point in the mainland of Australia.

Smoky Cape—A little to the north of the parallel of 31° S., and near Trial Bay; it was so designated by Cook, from the circumstance of his having observed on it fires producing a great quantity of smoke.

Korogoro Point—A little to the south of Smoky Cape.

Crescent Head—South of the preceding.

Point Plomer—South of the preceding.

Tacking Point—South of the preceding.

Indian Head—A bluff headland, to which Cook gave this name, from the number of aborigines observed upon it.

Crowdy Head—Near the entrance to the Manning River.

Cape Hawke—Latitude $32^{\circ} 14' S.$, near the entrance to Wallis' Lake.

Sugarloaf Point—About 10 miles south of Cape Hawke, and opposite to the Myall Lake.

Point Stephens—Near the entrance to Port Stephens.

Broken Bay Heads—At the entrance to that inlet.

Port Jackson Heads—At the entrance of the harbour.

Cape Banks—At the northern side of the entrance to Botany Bay; named after Sir J. Banks, who accompanied Cook on his first voyage.

Cape Solander—At the southern side of the entrance to Botany Bay; named after Dr. Solander, botanist to the expedition under Cook.

Point Bass—In the Illawarra district; named after Mr. Bass, the discoverer of the Strait bearing his name.

Black Head—Farther south; probably so called from its dark appearance.

Point Perpendicular—At the entrance to Jervis' Bay, on the northern side, in Latitude $35^{\circ} 10' S.$ The perpendicular appearance of the cliffs probably suggested the name.

Cape George—Between Jervis' Bay and Sussex Haven. It was so called by Cook from having been discovered on St. George's day.

Point Upright—North of Bateman's Bay.

Green Cape—South of Twofold Bay.

Cape Howe—Situated in Latitude $37^{\circ} 28' S.$

7. INDENTATIONS.—Among the ~~more~~ important indentations on the coast are;—

Shoal Bay—The estuary of the Clarence River.

Trial Bay—Near the mouth of the Macleay River.

Port Macquarie—The estuary of the Hastings River.

Crowdy Bay—Between Indian Head and Crowdy Head.

Harrington Inlet—At the mouth of the Manning River.

Port Stephens—A little to the north of the 32nd parallel—an extensive inlet forming an excellent harbour.

Port Hunter—An inlet formed by the estuary of the Hunter River.

Broken Bay—In Latitude $33^{\circ} 33' S.$; discovered by Cook.

Port Jackson—So named by Cook from its discoverer.

Botany Bay—In Latitude $34^{\circ} S.$; it received this appellation on account of the profusion of flowers found on its shores by the discoverers.

Port Hacking—A small inlet, a few miles to the south of Botany Bay.

Jervis' Bay—In Latitude $35^{\circ} 6' S.$ An extensive sheet of water nearly enclosed by the land.

Sussex Haven—A little to the south of Jervis' Bay.

Bateman's Bay—At the mouth of the Clyde River.

Turoos River—The estuary.

Mogoreka—Estuary of the Bega River.

Twofold Bay—Near the southern boundary of the colony.

8. LAGOONS.—In addition to these inlets of the sea, there are several sheets of water, which, being very nearly surrounded by land, and having extremely narrow openings, are popularly styled *Lakes*, though *Lagoons* would be a more correct title. Among the more conspicuous of these are—

Camden Haven—Named after Lord Camden, a little to the south of Port Macquarie.

Queen's Lake—A little to the south of Camden Haven.

Watson Taylor's Lake—South of the preceding.

Wallis' Lake } —Between the Manning and Hunter Rivers.
Myall Lake }

Lake Macquarie } —Between the Hunter and Hawkesbury Rivers.
Tuggerah Lakes }

Lake Illawarra—In the district of Illawarra.

Lake Cudmirra—South of Jervis' Bay.

Cunjurong Lake—A little further south.

Merrimbula Lake—A little north of Twofold Bay.

9. ISLANDS.—With the exception of Norfolk Island, and Howe's Island, which are not geographically connected with New South Wales, the islands belonging to the colony are few and unimportant, being, for the most part, mere rocks. The more noted of these are—

Solitary Islands—A group of rocky islets lying south of the 30th parallel.

Bird Island—A little north of Broken Bay.

Five Islands—Near the Illawarra district.

Montague Island—South of the 36th parallel.

CHAPTER II.

PHYSICAL FEATURES OF THE LAND.

10. SURFACE.—In general terms, the surface of New South Wales may be divided into three portions. The first consists of a narrow slip of undulating country lying along the coast, and averaging only thirty miles in width. Proceeding westward, we next arrive at a high plateau region of inconsiderable breadth, extending from north to south throughout the colony, parallel to the coast, but divided, in about 32° south latitude, into two distinct portions, by the valley of the Hunter River. Westward of the table-land lie vast plains, which constitute the third and largest portion of the colony. These plains stretch westward, with few interruptions, to the mountain ranges which lie near the western boundary of the colony. For convenience of reference, these different portions may be thus named:—

1. The Coast District.
2. The Table Lands.
3. The Great Plains.

New South Wales closely resembles, in physical conformation, the countries on the other side of the Pacific, except that in South America the natural features are on a grander scale. In each case we find a narrow strip of coast territory, then table lands traversed by long mountain chains, and sloping gradually down to vast interior plains.

11. **TABLE LANDS.**—The Table Lands furnish the key to the physical conformation of the country. As before stated, they are two in number—the northern and the southern. It will appear in the sequel that there is, in their position and general characteristics, a kind of symmetry, or correspondence, that is somewhat remarkable. The Northern Table Land extends for some distance into Queensland on the north, where it attains the greatest elevation, and stretches southward as far as the parallel of 30° , and the sources of the Manning River. It commences at an average distance of thirty-five miles from the coast, extending to the west as far as the 151st meridian. This table land has an average elevation of 2500 feet above the sea, but some parts rise much higher, attaining the altitude of 3700 feet. The Southern Table Land commences on the south side of the Hunter River Valley, and extends beyond the southern boundary of the colony, into Victoria. It has a general slope from south to north, the highest portion, in the colony, being near the southern extremity. On the whole, its elevation is rather less than that of the Northern Table Land, the average being about 2200 feet. The two table lands resemble each other in being higher at their distant extremities than at the points where they approach each other; in having nearly the same average elevations; in their average width and distance from the sea; and in their general appearance. Further, both present a steep, and even

precipitous, face to the eastward, while the slope to the westward is long and gradual. The surface is greatly diversified, sometimes stretching out into extensive level upland plains, but often crossed by ranges of hills, which are, in some cases, rounded and undulating, and in others rugged and steep. Among the more level tracts in the Northern Table Land, are the Darling Downs, Barney Downs, Beardy Plains, and Byron Plains.* In the Southern Table Land are Bathurst Plains, Goulbourn Plains, Yass Plains, and the Maneroo Plains or Brisbane Downs. The latter are elevated downs, consisting of a series of gentle undulations, well watered, lightly timbered, and possessing a fertile soil; but from their height and exposed surface, the climate in winter is severe. The Table Lands are connected by a chain of mountains running throughout their entire length, and sending off spurs in various directions. It is these spurs from the main range that diversify the surface of the table-lands, and form the watersheds of the various streams by which they are drained.

12. MOUNTAINS.—The mountain system of New South Wales is, generally speaking, simple. It consists of 1st, The Great Dividing Chain, and its lateral branches; 2nd, The Coast Ranges; 3rd, Ranges of the Interior; and 4th, Isolated Peaks and Groups.

* The term "plain" is, in New South Wales, indiscriminately applied to clear land in any situation. A "plain," in Geography, is a level tract of land slightly raised above the level of the sea. The "plains," so called, upon the table-lands, would be more appropriately named "downs."

It may be remarked of the mountains of this country, that although they do not attain an elevation at all corresponding to their extent, yet they are frequently remarkable for their steepness.

13. THE GREAT DIVIDING CHAIN.—This chain forms a portion of an immense cordillera, stretching without interruption throughout the whole length of the Eastern and South-eastern coasts of Australia, and forming through its whole extent the main watershed of the country. In this respect the similarity between the physical conformation of the eastern portion of the colony and that of the opposite coast of South America, is especially remarkable. In both cases, a range of mountains runs along the whole length of the continent in close proximity to the coast; and both chains, in accordance with the general law, present their more precipitous sides to the sea. With a few variations to be noted hereafter, the general direction of the Great Dividing Chain is from North to South, parallel to the coast. The appearance and structure of the chain exhibit several important variations. Where granite is the prevailing rock, the summits are rounded, seldom forming into prominent peaks. Where sandstone is the chief component, the mountains are flat-topped with precipitous sides; and where trap rocks exist in any quantity, sharp ridges and pointed peaks are to be found. In general, the Dividing Chain intersects the two table lands, though it sometimes, as in the case of the Blue Mountains, lies along the eastern edge.

The average elevation is about 3500 feet, though some peaks are much higher. For example, Ben Lomond is 5000 feet in altitude; Capoompeta, 4730; while the culminating point, Mount Kosciusko, attains an elevation of 7308 feet. It will be observed that the line of perpetual snow does not, in this latitude, descend below 8000 feet above the sea level, and that, consequently, snow will not, as a rule, remain upon the mountains during the whole year. Various names have been conferred upon different portions of the chain; and, for the sake of convenience, these appellations will be preserved, with some slight extension in their application. With this view, the Great Dividing Chain may be thus subdivided:—

1. New England Range; 2. Liverpool Range; 3. Blue Mountain Range; 4. Cullarin Range; 5. Gourcock Range; 6. Maneroo Range; and 7. The Muniong Range.

14. THE NEW ENGLAND RANGE.—This portion of the main Dividing Chain commences at the northern boundary of the colony, and extends nearly as far south as the 32nd parallel. It is of varying character and elevation in different parts; but its average height may be estimated at 3500 feet. Some of its offsets are, at least, of equal altitude. The culminating point is Ben Lomond, 5000 feet.

Various lateral ranges branch off from the main chain, both towards the east and west. The eastern spurs serve as watersheds to the streams flowing into the Pacific, and give to the

Coast District its varied and undulating surface. The first of these lateral branches, called *Macpherson's Range*, lies between the basins of the Logan on the north, and the Clarence and Richmond on the south. It is of a precipitous and inaccessible character, and is, therefore, well fitted to form the boundary between two colonies. The highest summit is Mount Lindsay, 5700 feet.

Macleay Range.—This range separates the basins of the Clarence and Macleay. It is rugged and inaccessible, though it does not, as far as is yet known, contain any peaks of remarkable elevation. It branches from the New England Range near Chandler's Peak, and terminates near the coast.

Nundewar (or Hardwick) Range.—The spurs on the west of the Dividing Chain have a general north-west direction. One of the most important of these is the Nundewar Range, which runs for a considerable distance, starting from near the southern extremity of the New England Range, and preserving the north-westerly direction. At a point near its termination, it has a height of about 3000 feet above the sea level.

Hastings Range.—The watershed between the Macleay and the Hastings Rivers is formed by this range, which, in its upper portions, is very lofty and rugged. One of the peaks, Mount Sea View, is said to attain an elevation of 6000 feet above the sea.

The Moonbi Range.—This range branches off to the westward nearly opposite to the preceding, and runs in a general north-westerly direction, separating the waters of the Maluerindi from those of the Peel. Its culminating point is 3593 feet in elevation.

15. THE LIVERPOOL RANGE.—The second portion of the main Dividing Chain is the Liverpool Range, so named by the explorer, Mr. Oxley, after Lord

Liverpool. It commences at the the termination of the New England Range, and runs in a general westerly, though circuitous, course for about 150 miles, separating the Valley of the Hunter from Liverpool Plains, and connecting the two Table Lands. The Liverpool Range consists of a chain of rugged mountains, rising into lofty detached peaks, varying in height from 3000 to 4000 feet, and sometimes attaining an elevation of nearly 5000 feet; the highest, perhaps, being Oxley's Peak. The most remarkable summit in this range is, probably, the burning mountain, named Mount Wingen, 1820 feet in altitude. This is not a volcano, the burning being caused by the ignition of coal-beds—as is very generally supposed—at some depth from the surface. The Liverpool Range may be crossed by numerous passes, of which the more noted are Pandora's Pass on the west, and the Gap at Murrurundi on the east. The latter is 2314 feet above the sea. Many considerable rivers take their rise in the Liverpool Range, the lateral spurs from which, running north and south, form subsidiary watersheds. The principal of these branch ranges are described below.

The Peel Range.—This range runs in a northerly direction, separating the basin of the Peel from that of its tributary, the Conadilly. The culminating point of the range is Mount Turi, 2952 feet.

The Mount Royal Range.—Commencing near the Hanging Rock, this range runs in a southerly direction. In the northern part it separates the streams flowing into the Manning from the tributaries of the Hunter; but further south, it projects into

the valley of the latter river, sending off various spurs and ramifications, which form watersheds between the numerous affluents to the main stream. This range and its branches close in the eastern side of the Hunter River Valley. The highest peak is Cobrabald, or Mount Royal, (? 3000 feet).

The Warrumbungle Range is the westerly prolongation of the Liverpool Range. It consists of a series of steep and lofty peaks, which, viewed at a distance, assume a variety of fantastic forms. The prevailing rocks are trap and granite, and the soil around is generally of excellent quality. Numerous springs are found in this range. The culminating point is Mount Exmouth, 3000 feet.

16. **THE BLUE MOUNTAIN RANGE.**—The Blue Mountains are so named from the appearance they present when viewed from a distance. The portion of the Great Dividing Chain generally known by this name is very limited in extent; but in these pages, will include all the mountainous tract stretching from the Liverpool Range to Lake Burrah Burrah, south of the 34th parallel. Near the commencement the range is not high, being lower probably than any other part of the Dividing Chain. Its course, though generally southerly, is very irregular, and though 150 miles from the sea at starting, its average distance is not more than 70 miles. In the middle part of their course, the Blue Mountains consist of two ranges running nearly parallel, and separated by a deep narrow valley. The western range exceeds the eastern in altitude, and the mountains, though less steep on the whole, rise into distinct peaks and summits. Owing probably to the fact of these mountains

being composed, on their eastern face at least, of sandstone rock, they present more the appearance of a tableland, having few elevations rising much above the general level. Even these are, for the most part, rounded in form, instead of being notched or serrated, or rising into pointed peaks, as occurs in mountains composed of older rocks. But the surface of the Blue Mountains is, so to speak, *scored* with vast chasms and deep ravines, with precipitous walls of rock on each side. "Narrow, gloomy, and profound, these stupendous rents in the bosom of the earth are enclosed between gigantic walls of sandstone rock, sometimes receding from, sometimes frightfully overhanging, the dark bed of the ravine and its black silent eddies, or its foaming torrents of water."* Some of these ravines open out into narrow valleys which contain good soil, and are watered by a perennial stream, though generally inaccessible except at one entrance. Many of the precipitous sides of these ravines have a depth of 1500 feet. To the early settlers in the colony, the rugged nature of the Blue Mountains long interposed an impassable barrier between the coast and the interior. A passage was first discovered in 1813—twenty-five years after the original settlement of the colony. The average height of this portion of the Great Dividing Chain is about 3300 feet, though some of the peaks attain a somewhat higher elevation. The highest point is probably Beemarang, 4100 feet, at the head of Campbell's River, a little to the north of the 34th parallel.

* Strzelecki.

The Hunter Range.—Commencing at Tayan Pic, on the 33rd parallel of south latitude, a spur branches off from the Blue Mountains towards the coast, and runs in a general easterly direction. It separates the tributaries of the Hawkesbury from those of the Hunter, enclosing the valley of the latter on the south, and spreading its numerous ramifications between the affluents of both rivers. The principal summit is Coricudgy. These mountains are more remarkable for their steepness and ruggedness, than for their height. Although precipitous and nearly inaccessible in some places, yet, as the most direct line of communication between Sydney, the Hunter Valley, and the Northern Districts, crosses this range, cattle are constantly driven by this route. But, on account of the difficulty of travelling by land, all traffic between the Hunter and the metropolis is now carried on by sea. Formerly a good carriage road existed, having been constructed at enormous expense by the Government.

The Mittagong Range.—Further south and near the extremity of the Blue Mountains, another easterly spur, called the Mittagong Range, branches off, and forms the northern boundary of the Southern Table Land on the coast side of the Main Dividing Chain. The highest point is about 2454 feet above the sea. Near it are some remarkable isolated peaks, resembling volcanic cones, one of the more conspicuous of which, Jellore, is plainly visible from Sydney.

The Macquarie Range.—Besides the numerous other westerly spurs from the Blue Mountains, there is one of considerable importance, which, as giving rise to many tributaries of the Macquarie River, may, with some propriety, be designated the Macquarie Range. It commences at about the 34th parallel, runs in a north-west direction, and divides the waters of the Macquarie from those of the Lachlan. Many of the eminences attain considerable height, such as Mount Lachlan (or Macquarie); but the culminating point is situated near the termination of the range. It is termed Mount Canobolas, 4610 feet.

17. **THE CULLARIN RANGE.**—This portion of the Great Dividing Chain extends from the Blue Mountains to the northern extremity of Lake George. Its direction is, for a short distance, westerly, but it afterwards turns abruptly to the south. The westerly portion of the range is of a smoother and more rounded character, less elevated and less intersected by ravines than the Blue Mountains. But at the angle where its course turns southward, the aspect of the country again changes, and the mountains become more rugged and precipitous. The average elevation is probably less than 3000 feet, though several important rivers have their sources in this range.

The Mundoonen Range.—This range divides the tributaries of the Murrumbidgee from those of the Lachlan in the uppermost part of their courses. Mundoonen, 3000 feet.

18. **THE GOUROCK RANGE.**—Extending from the head of Lake George to the sources of the most easterly tributaries of the Murrumbidgee is the Gourock Range, which runs in a southerly direction, increasing in height as it advances. Some of the summits attain considerable elevation, and the whole range presents a rugged and broken appearance. The principal elevation is Jindulian, 4300 feet.

19. **MANERO RANGE.**—From the termination of the Gourock Range, the main Dividing Chain continues for some distance in a southerly direction; but about 36° 30' South Latitude, it makes an abrupt turn, first

to the west, and then to the north-west. This portion of the chain may be designated the Manero Range. It encloses the most extensive elevated tract of country in New South Wales, and forms the watershed between the streams flowing west and north to the Murrumbidgee, eastward to the coast, and southward to the Snowy River. The western portion of the Manero Range consists of trap ridges, averaging 3000 feet in height, but frequently rising into peaks that attain an elevation of 4000 feet. It terminates a little north of the parallel of 36° in a remarkable mountain knot, from which several lateral, but lofty, ridges diverge in various directions. Among the more conspicuous summits of this range are—Malady's Peak, 3880 feet; Head of Kybean River, 4010 feet.

20. THE MUNIONG RANGE.—From the knot of mountains above mentioned, a main range continues in a S.S.W. direction to the southern boundary of the colony, from which point it turns more to the westward through Victoria. This range, called Muniong, constitutes the northern portion of the great Warragong chain (improperly, Australian Alps), and forms the highest land in New South Wales, though it does not contain the culminating point of the whole system. (According to Dr. Mueller, Mount Hotham, 7500 feet, in Victoria, is the highest peak in the Warragong mountains.) In average height, the Muniong Range attains an altitude of at least 6000 feet, and some of its summits exceed 7000 feet, rising nearly to the level of perpetual snow, which, in the same latitude and

under similar physical conditions, is about 8000 feet above the sea. According to the character of the season, snow may be constantly seen on this range from May to October; and, though it is not ordinarily visible during the summer season, it occasionally falls in the months of December and January. As in other mountainous countries, tremendous storms not unfrequently occur, followed by floods caused by the heavy rains. In general, the Muniong Range consists of clusters of broken peaks, surmounting steep and wall-like ridges. "They present," says Rev. W. B. Clarke, "the outline of a true Sierra Nevada." In this respect, they differ widely from the Blue Mountains. The culminating point of the Muniong Range is Mount Kosciuszko, so named by the first explorer of this region, Strzelecki, in honour of his illustrious countryman, the Polish patriot. Mount Kosciuszko is a craggy cone of syenite, rising to the height of 7300 feet, and commanding a prospect that includes an area of 7000 square miles. "Standing above the adjacent mountains which could either detract from its imposing aspect, or intercept the view, Mount Kosciuszko is one of those few elevations, the ascent of which, far from disappointing, presents the traveller with all that can remunerate fatigue. In the north-eastward view, the eye is carried as far back as the Shoalhaven country, the ridges of all the spurs of Manero and Twofold Bay, as well as those which, to the westward, inclose the tributaries of the Murrumbidgee, being conspicuously delineated. Beneath the feet, looking from the very verge of the

cone downwards almost perpendicularly, the eye plunges into a fearful gorge, 3000 feet deep, in the bed of which the sources of the Murray gather their contents, and roll their united waters to the west.”*

The Murrumbidgee Range.—This spur from the Muniong runs parallel with the uppermost course of the Murrumbidgee, and separates its basin from those of the Coodradigbee and other tributaries. The whole range consists of a succession of lofty broken peaks, some of which nearly rival the Muniong in elevation. Murragural (Mount Murray), the highest peak, rises to the elevation of 6987 feet.

The Tumut Range.—Another spur from the Muniong Range runs in a northerly direction, and divides the waters of the Tumut from those of the Coodradigbee River.

The Murray Range.—A third lateral range breaks off from the Muniong a little to the north of Mount Kosciusko, separating the tributaries of the Murray and Tumut, and extending its ramifications as far as the Murrumbidgee. The most noted summit is Mount Dargal, 5490 feet.

21. COAST RANGES.—On the east of the Great Dividing Chain, and parallel to it through a considerable portion of its course, lie ranges, which, from their proximity to the sea, may be called Coast Ranges. In general, they form the *edge* of the Table Lands, and occasionally attain considerable elevation, equalling, and sometimes surpassing, that of the Main Range. The distance of these ranges from the coast averages thirty-five miles, though they often approach much nearer. The following are the more conspicuous of the Coast Ranges:—

* Strzelecki.

The Northern Coast Range.—In general terms, this range may be said to lie between the Clarence and Manning Rivers, at a distance of 35 miles from the coast. It attains an average elevation of about 3000 feet, but one peak, Mount Sea-View, rises to the height of 6000 feet, exceeding in this respect, any mountain to the northward of the Blue Mountain Range.

The Illawarra Range.—Commencing at Bulli Point, on the coast, and running in a southerly direction, is the Illawarra Range. It does not attain any great elevation, but forms the edge of this part of the southern Table Land. Generally, it lies within five miles of the coast, but on approaching the Shoalhaven River, it recedes farther to the westward, and is continued in another range further south.

The Currocbilly Range extends from the Shoalhaven River to about the 36th parallel. It therefore lies opposite to the Gourcock Range, rivalling it in elevation and ruggedness. The most prominent elevation is Budawang, 3800 feet.

The South Coast Range runs southerly from the angle of the Manero Range towards the boundary line of the colony, near which it suddenly turns in a north-westerly direction towards the Muniong Range, with the spurs of which it appears to interlace. The South Coast Range runs, therefore, nearly parallel with the Manero Range, and these two, together with the Muniong Range, enclose the country drained by the Snowy River and its tributaries. This River finally escapes from the enclosed basin through a gap in the range, after passing through much broken country. The highest peak in this range, in New South Wales, is Coolungubbera, 3712 feet; but the culminating point is Delegete Hill, in Victoria, 4000 feet.

22. INTERIOR RANGES.—Near the western boundary of the colony are several ranges of hills forming the western watershed of the Darling River. As yet,

comparatively little is known of these ranges, except that they rise out of a barren, rocky, and sandy country, and attain no very great elevation. The principal ranges in this locality are the Grey Range and the Stanley, or Barrier, Range. In the former, the most remarkable elevation is Mount Arrowsmith; in the latter Mount Lyell, about 2000 feet in height. Between the Darling and the Lachlan are numerous low ranges and scattered elevations, but they do not form any connected system, and their height is not sufficiently great to cause any important interruption to the general level of the great plains of the interior.

23. ISOLATED MOUNTAINS.—The most remarkable of these are contained in a series apparently dotted at intervals along the coast, and of which the following may be easily traced on the map:—

Mount Doubleduke,
Whoman,
Elanie,
Yarrahappini,
Kibbora,
The Three Brothers,
Mount Talawah,
Dromedary,
Mumbulla,
Imlay (or Baloon) 2900.

24. VALLEYS.—Beyond the ordinary river valleys, little reference is needed to this subject, except to

mention the *sunk* valleys found in some parts of the colony. The name indicates the prominent feature in their physical conformation. They appear to have *sunk* below the level of the surrounding surface, and to be walled in on all sides by perpendicular rocky cliffs. Sunk valleys are most commonly to be met with in the Blue Mountains and their offsets. Such are the valley of Cox's River, Capertee, and others of less size in the Blue Mountains; Burrogorang, the valley through which the Wollondilly flows before its junction with the Nepean; the valley of the Kangaroo River; and Araluen. The bottom of the last mentioned is 2000 feet below the level of the surrounding country. Usually, sunk valleys have but one entrance, and are inaccessible to wheeled vehicles. A reference to the map will show that the valleys through which some of the eastern rivers flow are longitudinal, that is parallel to the direction of the Dividing Chain. This fact may be noted especially in the case of the Clarence River, and some of its affluents; the Hawkesbury; and the Shoalhaven. The parallelism between the Coast Ranges and the Dividing Chain accounts for the existence of these longitudinal valleys.

25. PLAINS.—The whole of the western portion of the colony, from the western edge of the table lands to the ranges beyond the Darling, is occupied by immense *plains*,—level tracts of country, little elevated above the sea. So perfect is the level of these plains that, in times of flood, rivers have been known to

flow in the opposite direction to their ordinary current; and from the slightness of the slope, the rivers have a tendency to accumulate their surplus waters in marshes and lagoons. The River Macquarie, for example, in the lower part of its course spreads itself out into marshes of considerable extent, in which it was formerly supposed to terminate. Other rivers form *one-branches*—as in the cases of the Murray and Upper Darling. In illustration of the slightness of the slope, it may be mentioned that, at Wallambora, the River Peel is only 800 feet above the sea level; and, as the waters have to flow a distance of 1500 miles before they reach the ocean, it follows that the fall in this part of the country does not exceed half a foot per mile. Hilly ridges are found at distant intervals, but they rarely attain a greater elevation than 500 feet above the level of the plain, and are furthermore of inconsiderable extent. The soil of these plains varies. The principal kind is a rich, black tenacious mould, formed by the decomposition of trap; but tracts of light sandy soil—sometimes consisting of pure sand—are largely interspersed. When supplied with sufficient moisture, the black soil produces grass and herbage in the most exuberant luxuriance, though cultivation has not yet been found to prosper. Distinctive names have hitherto been applied to these plains to a limited extent only. Those most commonly known by name are the Liverpool Plains, lying between the Liverpool Range and the Nundawar Range. Few large rivers flow through

the great plains; but they are intersected by numerous small streams, which, in the hot season, are completely dried up, leaving no trace of moisture, but channels only to show where streams had been. In some districts, the only reservoirs are shallow pools, which receive the rain as it falls, but from which the water is speedily evaporated by the burning heat of the sun. Hence it happens not unfrequently that the traveller may journey fifty, or even a hundred, miles without finding water. While this extreme dryness is the general characteristic of the great plains, it sometimes occurs that extensive districts are inundated in consequence of a rapid and heavy fall of rain, which causes the water to accumulate before it can be carried off by the ordinary channels, owing to the slightness of the slope. In their native state, the plains are generally clothed with luxuriant vegetation. The wild grasses and herbs sometimes grow to a greater height than that of a man.

26. THE COAST DISTRICT.—The various spurs running eastward from the Dividing Chain serve to diversify the surface of the Coast District, which is accordingly found to consist of alternate valleys and ranges throughout its whole extent. Its elevation above the sea level varies, though it is generally but slight.

27. TABLE OF MOUNTAINS WITH THEIR ELEVATIONS AND PRINCIPAL PEAKS.

1. *New England Range*.—(3500—5000 feet.)

Ben Lomond.....	5000* feet.
Rumbecc.....	4947* „
Joconda.....	4927* „
Boulgering Peak.....	4754* „
Capoompeta.....	4730* „
Chandler's Peak.....	4501* „
Mount Duval.....	4174* „
Blue Mountain.....	4126* „
Apsley Range (summit).....	3800* „
Harnham Hill.....	3681* „
Ohio Hill.....	3579* „
Clarke's Lookout.....	3435* „

2. *Macpherson's Range*.—(3000—5700 feet.)

Mount Lindsay.....	5700 feet.
Mount Barney.....(?)	4—5000 „
Mount Gipps.....(?)	4—5000 „
Mount Warning.....	3353 „

3. *The Hastings Range*.

Mount Sea View.....	6000 feet.
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4. *Nundawar Range*.

Mount Lindsay.....(?)	3000 feet.
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5. *Moonbi Range*.

The summit.....	3593* feet.
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6. *Liverpool Range*.—(3500—4900 feet.)

Mooan, or Mount McArthur(?)	4200 feet.
Oxley's Peak.....(?)	4000 „
Terrell.....(?)	4000 „
Towarra.....(?)	4000 „
Tinagroo.....(?)	4000 „

NOTE.—Numbers marked * imply that the measurements were made by Rev. W. B. Clarke. The query denotes that the estimated height is not based on actual measurement.

Mount Temi	(P) 4000 feet.
Murrulla	3710* „
Hanging Rock	3413* „
Summit between Barnard River and Oak Creek }	3872* „

7. *The Peel Range.*—(2000 feet.)

Turi.....	2952* feet.
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8. *Mount Royal Range.*—(P) (3000 feet.)

Cobrabald, or Mount Royal..	(P) 3000 feet.
Wollen	(P) 3000 „
Dyring.....	(P) 3000 „

9. *Warrumbungle Range.*—(2500—3000 feet.)

Mount Exmouth.....	3000 feet.
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10. *Blue Mountain Range.*—(3000—4000 feet.)

Beemarang	(P) 4100 feet.
Honeysuckle Hill	(P) (4000 feet)
Mount Adine	3736 „
Mount King George	3620 „
Mount Clarence.....	3500 „
Mount York	3440 „
Mount Blaxland	3256 „
Mount Tomah	3240 „
Evans' Crown	(P) 3200 „
Tayan Pic	(P) 4000 „

11. *The Hunter Range.*—(2500—3000 feet.)

Coricudgy	(P) 3000 feet.
Nulla	(P) 2500 „
Monundilla	(P) 2500 „
Poppong	(P) 2500 „
Werong	(P) 2500 „
Warrawolong	(P) 2500 „

12. *Mittagong Range.*—(—2000 feet.)

Highest point	2454 feet.
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13. *Macquarie Range*.—(3000—4000 feet.)
 Mount Canobolas 4610 feet.
 Coombing (?) 3500 „
14. *Cullarin Range*.—(3000 feet.)
 Therolonong 3108 feet.
 Carrangal..... 3058 „
 Cullarin (?) 3000 „
 Mount Fitton (?) 3000 „
 Mount Chaton (?) 3000 „
 Mount Dixon (?) 3000 „
15. *Mundoonen Range*.
 Mundoonen.
16. *Gourock Range*.—(3000—4000 feet.)
 Jindulian 4300* feet.
 Uranbeen 3800* „
 Tumanwong
 Talerang.
17. *Manero Range*.—(3500—4000 feet.)
 Head of Kybean River..... 4010* feet.
 Malady's Peak 3880* „
 Head of Winifred's Peak..... 3709* „
 Nimitabel Hill 3465* „
 Brothers
 Jennibruthera
 Cooma Hill
 Coolringdon
 Jejederick Hill
 Bobundara Hill.
18. *Munioing Range*.—(5000—6000 feet.)
 Mount Kosciusko 7308* feet.
 Ram's Head 6838* „
 Jagungal..... 6763* „
 Gungarlin 5337* „
 Crackemback 4697* „

19. *Murrumbidgee Range.*—(4000—6000 feet.)
 Murragural 6987* feet.
 Jallula..... 6934* „
 Centry Box
 Mount Clear
 Mount Tennant.
20. *Tumut Range.*
 Talbingo
21. *Murray Range.*
 Mount Dargal 5490 feet.
 Nackie Nackie 2242 „
 Tumberumba.
22. *Budawang Range.*—(3000 feet.)
 Budawang..... 3800 feet.
 Currocbilly
 Pigeon House (Diddel)
 Wonballaway
 Talaterang.
23. *South Coast Range.*—(3000 feet.)
 Coolungubbera 3712* feet.
24. *Barrier Range.*
 Mount Arrowsmith 2000 feet.
 Lyell.
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CHAPTER III.

DRAINAGE.

28. SLOPES.—The drainage system of New South Wales is remarkably simple, there being but one principal watershed—the Great Dividing Chain ; and three principal slopes—the Eastern, the Southern, and the Western. Besides these, there is a small system of inland drainage, that, namely, of Lake George. The comparative sizes of the different slopes may be seen from the following estimate, in round numbers, of their respective areas :—

I. Western Slope.....	270,000	square miles.
II. Eastern Slope	50,000	„
III. Southern Slope	3,000	„
IV. Inland Slope.....	300	„

It is evident, therefore, that not less than five-sixths of the whole surface of the colony is drained by the rivers on the western slope.

29. RIVERS ; SOURCES AND DIRECTIONS.—With few exceptions, the rivers have their sources in the Great Dividing Range, from which they flow eastward or westward. This is their *general* direction ; some peculiar modifications will be stated

hereafter. Those tributaries of the Darling which join it on the right bank, rise in high land to the northward, and flow southerly. A minute examination of a good map of the colony will reveal some striking correspondences in the direction of the rivers. For example, on the eastern slope, the general direction of the principal rivers is first north, or south, and then, making an abrupt bend, eastward. The large rivers to the north of the Hunter—the Clarence and the Macleay—flow southward at first, but have some tributaries running to the north; while those to the south of the Hunter—the Hawkesbury and Shoalhaven—flow northward. The rivers just enumerated are made to observe this direction by the fact that they flow through longitudinal valleys, parallel with the Great Dividing Chain. This coincidence in direction is still more remarkable on the western slope, where the rivers seem to describe parallel curves, flowing first northward, then north-west, west, and finally south.

30. FALL AND COURSES.—The average fall of the eastern slope is calculated at seventy feet per mile; of the western, at three feet per mile for the whole course of the waters. The rivers draining the eastern slope are unconnected with each other, and consequently form many separate basins, some of them of small extent; while, on the other hand, all the rivers on the western slope eventually unite their waters and form but one immense basin, that of the River Murray. Again, the courses of the eastern rivers are comparatively short

and their streams rapid, but the contrary is the case with the western rivers which are long and sluggish.

31. VOLUME.—The rivers of New South Wales are distinguished by the usual characteristics of streams flowing through countries situated near the Tropics, and have also some peculiarities of their own. In the first place, the volume of water they contain varies to a great extent with the seasons. During those portions of the year when little or no rain falls, the largest streams are greatly diminished in depth and volume, while the smaller ones cease to flow, and even become altogether dried up. It not unfrequently happens that water cannot be obtained from the bed of a river except in a few ponds or waterholes, at great distances from each other. This defect is aggravated by the excessive dryness of the climate, which promotes rapid evaporation and exhausts the water contained in the channels of rivers, preventing, at the same time, the deposition of a fresh supply. On the eastern slope, the fall of the land is so rapid that the current of the rivers flows with great velocity, and the country is drained in a short space of time. On the other hand, the enormous length of the courses of the western rivers, which have few tributaries except near their sources; the sluggishness of the streams arising from the level nature of the country through which they flow; and the facilities for evaporation thus afforded, together with the generally arid and thirsty character of the soil: cause their waters to be easily exhausted. Except in the case of

the rivers having their sources in the Muniong Range, all the streams depend for their supply of water entirely upon the rain-fall; and, in consequence of the rocky and precipitous nature of the mountains, the rain is carried off almost as rapidly as it is deposited. As there is, therefore, no collection of water in internal reservoirs, either of rocky caverns or mossy swamps, there can be none of that gradual percolation of the moisture by means of which the rivers of other countries are supplied with a perennial stream.

32. VOLUME, COMPARATIVE.—From the circumstances just recited, arises this apparent anomaly in the condition of Australian rivers, that they decrease in size in proportion as they recede from their sources. From these causes, also, it happens that the Darling, with a course longer than that of the Danube, and a basin probably of greater extent, has, in comparison with the same river, but an inconsiderable volume of water. In fact, the usual rule that the volume of a river depends upon the extent of its basin, appears to be flatly contradicted by the peculiar circumstances of Australia. The coast rivers indeed seem to be in accordance with rule; but this apparent agreement is explained by the fact that their lower courses being influenced by the tide, are in reality *inlets* of the sea. The rivers flowing from the Muniong Range are materially increased in volume during the spring and summer by the melting of the snow, and are thus more constantly supplied with water. Most of the

rivers of the western slope in the higher part of their courses, on the Table Lands, consist of chains of deep pools in rocky or earthy basins, and connected by watercourses. These pools seldom dry up, even in times of great drought when all appearance of water disappears from the watercourses; and it would, therefore, seem as if the waterholes, as they are called, were fed by springs, though this cannot be confidently asserted in many instances in New South Wales.

33. FLOODS.—At certain seasons, the rains are liable to fall in extreme abundance so as to fill the rivers to overflowing and inundate the neighbouring country. These floods seem to occur to a greater extent than usual at certain irregular periods, and occasion serious injury to life and property. In former years, the Hawkesbury has been known to rise to an astonishing height above its ordinary level—according to some statements, as much as ninety feet. The destructive flood at Gundagai in 1852, when the Murrumbidgee rose in some places fifty feet above the usual height, is one of the most remarkable examples of inundation occurring on the west of the Dividing Chain. In the year 1860, the rivers on the coast from Twofold Bay to the Manning River, and including the Shoalhaven, Hawkesbury, and Hunter, were several times in flood, owing to long-continued heavy rains.

34. BARS.—Most of the rivers on the eastern slope form *bars* at their mouths. These sand-banks are

caused partly by the mud deposited by the river itself, and partly by the sand washed up by the ocean. Their positions are frequently changed, according as the river current or the tide is the stronger. One effect of these bars is to impede navigation.

35. DETAILED DESCRIPTION OF RIVERS.—The following descriptive notes will serve to convey some notions of the magnitude and relative importance of the various streams and of any peculiarities in their courses or basins.

EAST SLOPE.

1. The *Richmond* rises in the Macpherson Range, near Mount Lindsay, and flows for some distance in a southerly direction, receiving numerous tributaries, of which that called the North Arm is the most considerable. A little south of the 29th parallel, it turns to the north-east and forms a broad estuary, communicating with the Pacific at Lennox Head. The entrance is obstructed by a bar which, under certain conditions of season and weather, is dangerous, excepting for vessels of small tonnage.

2. As regards length, volume, and extent of basin, the *Clarence* is one of the finest rivers on the east coast. The sources of some of its numerous affluents lie as much as 150 miles apart in a straight line. The northern, or main stream, is composed of a number of rills which rise in the Macpherson Range; and it receives in its course southwards, the Timbarra from the New England Range, near Capoompetta. In this part of its course, the Clarence fringes the Northern Table Land, at the base of which it flows for some distance. The southern branch of the Clarence rises in the lateral range forming the watershed between the Clarence and the Macleay; and flows northward, receiving the Boyd and the Mitchell from New England.

From the confluence of the two branches, the united stream flows in an easterly direction, receiving in its course the waters of the Urara and other creeks. It becomes navigable at about 70 miles from the sea, which it enters through a wide estuary called Shoal Bay. In the lower part of its course, the Clarence forms several broad lake-like expansions which, studded with islets, give a picturesque aspect to the scenery. The principal of these is named the Broadwater.

3. The *Macleay* is composed of two principal branches, both rising in the Northern Table Land. One of these is the Gwyra, which rises a little south of Chandler's Peak and flows in a southerly direction to about the 31st parallel, where it joins the other branch, the Apsley. This river has its source in the southern portion of the New England Range, and flows in a general northern direction but by a very circuitous course to the junction. The Apsley forms a cataract of great depth in one part of its course, and flows through a ravine between steep cliffs, said to be 3000 feet in elevation. After receiving other tributaries, the Macleay enters the sea at Trial Bay. Between the Clarence and the Macleay, there are several small rivers flowing into the Pacific—the Bollenger, Nambuckra, &c. Little is known of the country through which they flow, except that it is low and swampy. Few persons besides cedar cutters ever visit the neighbourhood.

4. Following the coast southward, we next arrive at the *Hastings* River, which rises near Mount Sea View, flows easterly, and, after receiving numerous small tributaries, flows into the Pacific at Port Macquarie.

5. The *Manning* has its source at the eastern extremity of the Liverpool Range, and is augmented by the numerous affluents which flow into it from the same range and from the Mount Royal Range. Its general course is easterly, and it forms a delta at its mouth. The two channels by which it communicates with the ocean are Farquhar and Harrington inlets, the

latter of which is completely blocked up with sand, while the passage of the former is impeded by a dangerous bar. The delta is divided into several islands—Mitchell, Oxley, Jones, and Dumaresque Islands.

6. The *Karuah* rises in the Mount Royal Range, and flows south and east into Port Stephens.

7. One of the most important rivers on the east coast is the *Hunter* (Coquon). The main source of this stream is in the angle formed by the Liverpool and Mount Royal Ranges, from both of which many tributaries descend. The valley of the Hunter being completely encircled with mountains, it receives tributaries from both banks throughout the whole of its course. The principal affluent is the Goulburn, which receives seven large creeks from the Liverpool Range and five from the Blue Mountain Range and its eastern spurs. The united stream is augmented by the waters of the Patterson and the Williams on the left bank, and of the Wollombi and Wallis Creeks on the right. The general direction of the Hunter after its junction with the Goulburn, is easterly, and it flows into the Pacific at Newcastle. In the lower part of its course the Hunter expands to a considerable width, and is navigable for about 30 miles from its mouth.

8. The basin of the *Hawkesbury* (Deerubbun) is very curiously formed, and constitutes one of the geographical peculiarities of New South Wales. It consists of three slopes inclining inwards—a northern, a western, and an eastern slope—*e.g.* :

SLOPE.	WATERSHED.	GENERAL DIRECTION OF WATERS.
Northern ..	Cullarin Range & Eastern spurs	Northward.
Eastern....	Blue Mountain Range	Eastward.
Western ..	Illawarra Range	Westward.

The main stream comes from the Northern Slope. It is formed, in the first instance, of the Wollondilly and its southern branch,

the Mulwaree. In its progress northward the Wollondilly is joined by the Cookbundoon from the left, and by the Winge-carribee from the right bank. It then traverses the remarkable sunk valley called Burragorang, still keeping its northerly direction. The next important tributary, Cox's River, collects the waters drained from the southern portion of the Blue Mountains, flows in a general easterly direction, and joins the Wollondilly, the united stream then assuming the name of Warragamba. In the next place, several small streams rising on the west of the Illawarra Range, unite their waters and form the Cowpasture River, which flows westerly into the Warragamba. The peculiarity about these westward flowing waters is, that some of them rise within *two miles of the sea shore*, and flow in the opposite direction from it. The main stream is now called the Nepean, preserving that name until joined by the Grose from the Blue Mountains, when it is designated the Hawkesbury. After receiving the Colo and the Macdonald from the Blue Mountains, the Hawkesbury turns suddenly to the eastward and discharges its waters into Broken Bay. Owing to the immense territory drained by the Hawkesbury, and the peculiarity of its watersheds, this river is more than ordinarily liable to sudden floods, which cause its waters to overflow its banks, and to rise to a great height above the usual level. The lower portion of the Hawkesbury is navigable, and the scenery on its banks is remarkable for its beauty and picturesque appearance.

9. The *Shoalhaven*, in its general course and direction, preserves a curious parallelism with the main stream of the Hawkesbury, first running northward for a considerable distance, and then suddenly turning to the eastward. This river rises near the southern extremity of the Gourock Range, and flows northward through that portion of the southern Table Land which lies between the range just mentioned and the Budawang Range. Numerous small tributaries join the Shoalhaven in this part of its course. After making the great bend to the eastward, it

descends from the table land and flows through immense ravines ranging from 500 to 1500 feet in depth. These are known as the "Shoalhaven Gullies."

10. The *Bundo*, or *Clyde*, rises in the Budawang Range and flows southward, parallel with the coast, into Bateman's Bay. It is short, but its lower course is navigable for vessels of considerable tonnage.

11. The *Moruya* rises on the Table Land (S.), and flows easterly into the Pacific after a short course of about eighty miles. One of its small feeders drains the remarkable Araluen Valley.

12. The *Tures* rises in the Monaro Range, and flows in an easterly direction into the Pacific.

13. The numerous feeders of the Bega River take their rise in the Monaro and South Coast Ranges, and, after uniting into one stream, flow into the Pacific.

14. The *Towamba* rises in the South Coast Range, and flows into Twofold Bay.

SOUTHERN SLOPE.

15. Only one river drains this slope, the *Margalong* or *Snowy River*. Its branches rise in the Muniung, Monaro, and South Coast Ranges. They are—

FROM MUNIUNG RANGE.	FROM MONARO RANGE.	FROM SOUTH COAST RANGE.
Eucumbene	Wulwye	Bombala and tributaries
Crackenback	Bobundarra	Cambolong
Moamba	MacLaughlan.	Columboca
Tongaro		Maharatta.
Moyengul		
Ingeegoodbee.		

The main stream rises in the Muniung Range. Owing to the broken nature of the country through which it flows, the course

of the Snowy River is exceedingly irregular. Its direction varies from North, to East, South, and West, and the slopes of its basin vary in the same manner.

WESTERN SLOPE.

16. Commencing at the north, the first of the great rivers draining the western slope is the *Darling* (Callewatta), which drains more than half the colony. Omitting all mention of those among its feeders that belong more to Queensland than to New South Wales, the first large tributary is the *Barwan*. This river, with its affluents, drains the western slope of the Northern Table Land, together with a large portion of the great Plains. It drains, in particular, the magnificent tract known as the Liverpool Plains. The principal branches are—the M'Intyre or Karaula, the Gwydir, and the Namoi or Peel. Each of these requires a separate notice.

17. The *M'Intyre* has all its sources in the New England Range, from which it receives the Severn and Dumaresque Rivers, together with some smaller streams. Its course is circuitous, and as it reaches the flat country, it sends out ana-branches, as at Calandoon.

18. The *Gwydir* (or Kindur) runs nearly parallel with the M'Intyre. Its sources are in the New England and Nundewar Ranges. It joins the Karaula in 29° 30' S. Latitude.

19. The *Namoi*, or *Peel*, drains a northern, a western, and a southern slope. Its general course is north-west, and it flows through a comparatively well-watered country, receiving a large number of tributaries. It is composed of two principal streams—the *Maluerindi*, which receives the Manilla and some smaller affluents; and the Peel proper, which is fed by the *Cockburn* and a large number of creeks rising in the Liverpool Range. After the junction of these two streams, the Namoi receives on the south bank the Conadilly and Terebeile rivers, both having their numerous sources in the Liverpool Range.

20. The *Barwan* next receives on its left bank, the *Castlereagh* from the Warrumbungle Range, and the *Merri Merri* Creek running nearly parallel.

21. The *Macquarie* (Wambool) is formed by the union of the Fish River and Campbell's River, the head waters of which rise on the west slope of the Blue Mountain Range. Its course, at first irregular, becomes more direct as it emerges from the Table Land and mountainous country out into the level open plains, and during one half its length is about north-west. From the right bank it receives the Winburndale Creek, the Turon River, the Cudgegong, the Talbragar, and the Coalbaggie Creek; from the left it receives the Bell River and various smaller streams. In the lower part of its course, the Macquarie expands and spreads its waters over a large tract of low-lying plain, forming, according to the character of the season, a vast swamp, or an inland lake in which the river was formerly believed to terminate. The Macquarie, however, issues from the swamp, and resumes its course to the Barwan which it joins a little to the south of the 30th parallel.

22. Meanwhile, on the right bank, the Darling proper, the Balonne or Narran—with its ana-branches, the Bokhara and the Culgoa—joins the Barwan, and the united stream, henceforward known as the *Darling* only, flows in a south-westerly direction into the Murray, which it enters by two mouths.

23. The *Bogan* is next received from the left bank, and although the confluence of these two streams is fully 500 miles from the sea, this is the last considerable tributary, with the exception of the Warrego which joins the Darling to the southward of the 28th parallel. The Paroo *probably* unites with the Darling still further to the south.

24. The *Lachlan* (Calare) is the next main stream, though greatly inferior in length and extent of basin to the Darling. It rises on the western flanks of the Cullarin Range, and for some distance flows in a northerly direction. After uniting with the

Jerrawa Creek, it assumes the name of Narrawa, and receives the Crookwell and some minor tributaries from the right. It is then joined by the Abercrombie also from the right bank, and is then distinctively known as the Lachlan. The Boorowa from the left, and the Belubula from the right, are the last considerable affluents, although numerous creeks and rivulets, in addition to those mentioned, contribute to swell the waters of the Lachlan. Sweeping round to the west and north-west like an arc of a circle, the Lachlan finally makes its way into the Murrumbidgee, flowing in the lower part of its course, through vast level plains.

25. The upper course of the *Murrumbidgee* is singularly tortuous. Like the Snowy River, it receives tributaries from all directions, and some of these, which rise within a few miles of its own source, do not mingle their waters till 200 or 300 miles of its course have run. The remotest sources of the Murrumbidgee lie among the Muniong, Manero and Murrumbidgee Ranges, and at first its direction is south-east; but in the neighbourhood of Cooma it turns abruptly to the northward, and maintains that direction for some distance, first receiving the waters of the Umaralla and its feeders from the right bank. The Queanbeyan from the Gourock Range, and the Yass River from the Cullarin Range next contribute their waters in succession; and after them, two others from the left bank, the Oodradigbee and the Tumut, besides smaller streams, such as the Adelong, the Nackie, and the Tarcutta. After the first 300 miles it pursues a westerly course, and uniting with the Lachlan, the joint streams flow into the Murray.

26. The *Murray* (Millewa) rises in the Muniong Range near Mount Kosciusko, and flows westerly and north-westerly through the whole width of the colony, receiving in its course the drainage of nearly half of Eastern Australia. The Murray is, therefore, the most important stream in this portion of Australia, if not indeed the largest yet known in the whole continent.

26. The lower courses of the *Murray* and *Murrumbidgee* are connected by ana-branches with each other. For example, the *Wakool* (Edward) River runs out of the *Murray* and flows in nearly the same direction. After receiving and throwing off numerous ana-branches, it is joined by the *River Coates*, itself consisting mainly of the *Yanko Creek*, an ana-branch from the *Murrumbidgee* and the *Billabong Creek*. Much of this part of the colony is consequently covered with a network of streams.

36. LAKES.—The Lakes of New South Wales are few in number compared with the vast extent of its territory, and are also of small sizes. On account of the general dryness of the climate, and the infrequency of the fall of rain in most parts of the country, the lakes are sometimes reduced to the condition of mere swamps, and it has even happened that the bed of a lake has been brought under cultivation. The numerous small lakes which abound in some parts of the country are locally termed “Lagoons.”

37. FIRST LAKE REGION.—Lakes are found in two districts of the colony, and they differ in character accordingly. The first of these districts is situated on the Southern Table Land, on the western side of the Dividing Chain chiefly. In this district are *Lake George*, *Lake Bathurst*, and the *Tarrago Lakes*. The first of these is in general about 15 miles in length by five in breadth, with an area of about 40 square miles, though its dimensions vary considerably with the nature of the seasons. Although situated at an elevation of 2000 feet above the level of the sea, this

lake receives the drainage of a considerable extent of country on its eastern and southern banks. The western shore is hemmed in by a steep range of hills of no great elevation. Lake Bathurst, in the same latitude (35° S.), but further to the eastward, is much smaller than Lake George, being about three miles in diameter, and having an area of eight square miles. It is supplied with water from numerous small streams which flow only in rainy weather. The Tarrago Lake lies to the north of Lake George, and is of very small extent. Still farther north, and near the crest of the Dividing Chain, is the Burra Burra Lake, at an elevation of about 3000 feet above the sea.

38. SECOND LAKE REGION.—The second lake region lies along the lower courses of the great western rivers. For the reasons already stated, it is extremely difficult to determine the size of these lakes, inasmuch as they depend for their supply of water either upon the amount of rainfall, or upon the overflowing of the rivers. Near the Lachlan River, and on the eastern side, are Lakes Cowal, Cudjallagong or Regent's Lake, and Quawingame; on the right bank, Lakes Waljeers and Boyango. On the right bank of the Murrumbidgee lies Lake Paika. Between the Murray and Murrumbidgee are Lakes Urana, Tala, and Yonga. Near the Murray, on the right bank, are Lakes Proa, Benanee, and Victoria, the last near the western boundary of the colony. Lake Cawndilla is situated on the right bank of the Darling.

39.—TABLE OF RIVERS.—Table showing the lengths of rivers and the areas of their basins :—*

I.—EAST SLOPE.		
RIVERS.	LENGTHS (windings included).	AREA OF BASINS..
Richmond	120 miles.	2,400 square miles.
Clarence	240	8,600
Macleay.....	190	4,800
Hastings	70	1,400
Manning	100	3,000
Karuah	45	600
Hunter	300	7,900
Hawkesbury.....	330	8,700
Shoalhaven	260	3,300
Clyde.....	70	450
Moruya	80	350
Tuross	60	600
Bega	60	550
Towamba	40	300
Other small rivers ..	..	7,650
Total..		50,000

II.—SOUTHERN SLOPE.		
Snowy River	{ 240 miles in New South Wales }	3,000
Eucumbene	{ Tributaries of the Snowy River }	
Mowamba		
Bobundarra		
Bombala		

III.—INLAND SLOPE.		
Turallo Creek	{ }	300
Butmaroo Creek		

* These figures are mere estimates. Until actual surveys of the country have been made, they may be used as approximations to the truth.

IV.—WESTERN SLOPE.

RIVERS.	LENGTHS.	AREA OF BASINS.
	.... miles.	.... square miles.
Mooni.....	....	....
Narran .....	....	....
Warrego .....	....	....
Paroo .....	....	....
M'Intyre	350	5,250
Gwydir	445	9,500
Namoi	600	17,500
Castlereagh	365	5,200
Macquarie.....	750	18,000
Bogan	450	8,300
Barwan	510	4,150
Darling (proper)	650	100,000
TOTAL FOR DARLING AND AFFLUENTS		198,000
Lachlan.....	700	27,000
Yass	70	675
Queanbeyan .....	....	700
Umeralla .....	....	750
Coodradigbee .....	....	550
Tumut .....	....	1,600
Murrumbidgee	1,350	25,725
TOTAL FOR MURRUMBIDGEE AND AFFLUENTS		57,000
Murray	1,120	15,500
TOTAL FOR MURRAY AND AFFLUENTS		270,000.

CHAPTER IV.

CLIMATE.

40. GENERAL CHARACTERISTICS OF CLIMATE.—Lying between the 28th and 39th parallel of south latitude, New South Wales occupies the warmer portion of the South Temperate Zone. The character of the climate may be partly inferred from the fact that the country is included in the space bounded by the isothermal lines of 70° and 60° , and is similarly situated to the south of Spain and Portugal, north of Africa, and the Southern States of North America. In general terms, the climate may be described as warm and dry. Great variations of temperature are occasionally experienced for short periods; but, on the average of years, the difference between the mean temperatures of summer and winter is not more than twenty degrees. In like manner, the generally dry condition of the atmosphere is in some years increased, and severe droughts ensue; while, on the other hand, excessive rains and consequent floods prevail at uncertain intervals.

41. VARIETIES OF CLIMATE.—But, in a country of such vast extent as New South Wales, it is to be expected that diversities of climate will exist; and accordingly we find that such differences are actually

observed, and are produced not only by variation of latitude, but also by inequality of elevation above the sea-level. Some others of the causes which influence climate operate with more or less force in different portions of the country, as, for instance, proximity to the sea, position and direction of the mountain chains, and the prevailing winds. While, therefore, the *general* character of the climate remains as above described, it may be classed under three varieties, corresponding to the physical divisions previously pointed out. The precise nature of the differences between these districts, as regards climate, may be seen from the following Table, London being taken as a basis of comparison :—

	MEAN ANNUAL TEMPERATURE.	MEAN ANNUAL FALL OF RAIN.	AVERAGE NUMBER OF WET DAYS.
London	50°	.. 24 inches	.. 175
Coast District ..	67°	.. 60 inches	.. 140
Table Lands' ..	54°	.. 30 inches	.. 114
Interior Plains..	65°	.. 19 inches	.. 64

It must, of course, be understood that the figures given above are mere approximations, sufficient observations not having been taken to ensure strict accuracy.

42. CLIMATE OF THE COAST REGION. — The Coast Region extends over nine degrees of latitude. This circumstance alone is sufficient to cause some variation in the temperature of different parts; but in general, the character of the climate does not alter to any material extent. The mean annual temperature is higher, and the fall of rain greater than in the other

divisions, but it is not subject to the extremes of heat and cold which are sometimes felt on the plains. It is warmer than the Table Lands on account of its lower elevation; and the moderating influence of the ocean preserves it from the great heats of the interior. The proximity of the Dividing Chain to the sea causes a greater amount of rain to fall on the Coast Region; for the clouds brought up by the south-east wind are arrested in the progress westward by that range, and are made to deposit their moisture on its eastern flanks. In summer, the prevailing wind is the north-east—a sea-breeze blowing with considerable regularity, though not so certain as within the tropics. It is varied chiefly by the *hot wind* blowing from the north-west, and by a cold wind from the south. The hot winds blow occasionally during the summer, and raise the temperature in exposed situations as high as 120°. They are also excessively dry, and their combined heat and dryness not only render them intolerably oppressive to the human constitution, but cause them to affect vegetation injuriously by scorching and shrivelling leaves and withering flowers and fruits. The cause of the hot wind is not known. Formerly it was believed to be produced by the heating of the atmosphere in the neighbourhood of the great desert which was supposed to occupy the interior of the continent; but it is now more generally regarded as forming one of a series of similar currents prevailing in Southern Europe, Northern Africa, Arabia, Siberia, North and South America. The hot

wind is usually succeeded by a breeze from the southward, which, from its lower temperature, imparts a grateful coolness to the atmosphere, and invigorates the frame rendered languid by the excessive heat. Notwithstanding this drawback, the climate of the coast region is, generally speaking, genial, healthy, and pleasant. The vegetable products are of a strangely varied character. The banana and the oak, the apple and the fig, the vine and the peach flourish side by side.

43. CLIMATE OF THE TABLE LANDS.—The climate of the Table Lands, by reason of their greater elevation, is considerably colder than that of the other sections of the colony. As regards humidity, it holds a position between the coast and the plains, being dryer than one and moister than the other. Some portion of these differences is doubtless occasioned by the presence of the great mountain chain which, though never rising to the level of perpetual congelation, is in parts frequently covered with snow for tolerably long periods. In winter, the temperature frequently falls below the freezing point, and ice is then very common; but the frost is generally of short duration, as the power of the mid-day sun is sufficient to produce a thaw. Altogether the climate closely resembles that of the South of England, though, from the fact that the rain falls more rapidly and less constantly, the excessive humidity of the English climate is not experienced. The fruits, grain, and vegetables of the British Islands may be cultivated to

great perfection on the Table Lands, the Coast Region being too hot for some of these, as the gooseberry and currant. On the other hand, the semi-tropical productions of the coast, as the banana, do not flourish on the Table Lands, on account of the diminished temperature.

44. CLIMATE OF THE INTERIOR PLAINS.—On the Plains, heat, cold, and dryness are more intense than in the other portions of the colony. It is hotter, because the cooling influences of proximity to the sea and of elevation are wanting; it is colder, because of the more rapid radiation of heat and exposure to cold winds; and dryer, because of the absence of mountain chains to attract clouds, arrest their progress, and bring about the precipitation of their moisture. During summer and in the sun, the temperature has been known to rise to the height of 130° Fahrenheit; while in winter nights the thermometer has fallen almost to zero. Again, while the general character of the climate is that of extreme dryness, it has been varied, on the one hand, by occasional years of drought during which no rain fell; and on the other, by years of excessive rain. In the one case, the vast level plains were converted into waterless deserts in which the *mirage* was of not infrequent occurrence; and in the other, they were changed into immense lakes and apparently interminable swamps. Hence it has happened that, in the spot where one explorer has described a large and beautiful lake, another, in succeeding years, has found wide meadows, well

grassed, but deficient in water. . A remarkable example of this fact is afforded by the reports of the explorers, Oxley and Sturt. The former found the lower courses of the Macquarie and Lachlan to expand into vast marshes which effectually checked his advance, and led him to believe that a large inland sea existed in this part of Australia. When after an interval of ten years, three of which had been extremely dry, Sturt visited the region of the Macquarie, he found no water, but a dry arid tract resembling a desert.

45. GENERAL REMARKS.—Some of the general characteristics of the climate are the lightness and purity of the atmosphere, the bright, clear appearance of the sky, and the prevalence of sunshine. These, together with the dryness of the air, tend to counteract the enervating and debilitating effects of great heat, and thus render the climate more endurable than those of countries in which a high temperature is accompanied with excessive moisture. The cheerful, exhilarating quality of the climate strikes the stranger from any of the dull and murky countries of the north, as one of the most marked features. Notwithstanding the number of wet days—that is, days on which some rain falls—the certainty of fine weather can be depended upon for long periods. The rain is almost tropical in its character, falling rapidly and in large quantities especially during the frequent thunder storms which occur in the warm season.

CHAPTER V.

GEOLOGICAL STRUCTURE.—SOIL.—MINERAL PRODUCTIONS.

46. In so extensive a country as New South Wales, it is natural to suppose that the varieties of geological formation will be numerous and strongly contrasted; and as a consequence of this diversity, it will be admitted that a detailed description would not be possible except by expatiating upon the subject at great length. The following account is therefore very general in its nature.

47. GENERAL GEOLOGICAL STRUCTURE.—The Table Lands consist, for the most part, of primary rocks, granite and its varieties. These form as it were the *floor* of the Table Lands, and are in many places, pierced and rent by the intrusion of other igneous rocks of trappean formation, or covered with strata of the metamorphic series, as mica slate. Occasionally the primary rocks rise into lofty peaks, as in the case of Mount Kosciusko, which consists of a sienitic cone resting upon a granite base; but as a general rule, they form only a gently undulating surface, or swell into ridges of a rounded contour and moderate elevation. The trap rocks which penetrate the granite floor sometimes spread out into tracts of level country,

forming the *plains*, as they are popularly termed, on the Table Lands; but as frequently rise into sharp naked peaks. An example of the latter may be seen in the Liverpool Range. Rocks of the secondary age chiefly prevail in the coast district, but they are occasionally disturbed and penetrated by some of the eruptive rocks. That narrow strip of territory bordering upon the coast and named the Illawarra District, exemplifies this statement in a remarkable manner. In this district it would appear as if the original coast had been upheaved to the height of 1500 feet by the eruption of igneous rock, and that the edge of the mountains was formed by the precipitous cliffs of the former shore. The trap so produced constitutes the greater portion of the surface of the district. In confirmation of this view, it may be mentioned that shells of a marine type are found upon the mountains which formed the ancient sea-margin. Among the secondary rocks under consideration, none are, perhaps, of greater importance than those of the carboniferous group which occupy a large proportion of the Coast District. The Great Plains of the western interior are composed of tertiary rocks and recent deposits, alternating with extensive areas formed of trap. While no traces of recent volcanic action are observable in any part of the colony, it will be seen from the foregoing statements that this agency has been mainly instrumental in giving to the country its present structure and appearance.

48. SOIL.—In general terms, the character of the

soil varies with the nature of the underlying strata. When the soil is formed by the disintegration of primary and secondary rocks, it is, with the exceptions noted hereafter, of a poor and barren quality, being deficient in those organic and alkaline ingredients which produce fertility. The conditions necessary for the production of vegetable mould are nearly all absent in New South Wales. The trees are almost universally evergreen, and there is consequently no deposit of leaves in autumn. The leaves are destitute, for the most part, of salts; and when they fall, their decomposition into mould is prevented by the heat and dryness of the climate. There is, therefore, in New South Wales a large quantity of land of moderate fertility, suitable for grazing purposes, together with a considerable proportion of the worst description (cold clay or loose sand), useless for either grazing or agricultural purposes. But in cases where the soil is produced from the decomposition of trap or limestone rock, it is of high quality, requiring only abundant moisture to render it extremely productive. For example, the Illawarra District has soil composed, to a great extent, of trap, and it exhibits a high degree of fertility, as is manifest from the luxuriance of its indigenous vegetation. The low grounds lying along the banks of the rivers, especially those flowing into the Pacific, are formed of rich alluvium, in some cases wonderfully fertile. The bottom lands of the Clarence, Macleay, Manning, Hunter, Hawkesbury, and Shoalhaven are especially

noted for their productiveness, and probably vie in quality with the richest lands in the world.

49. MINERALS.—Comparatively little is known of the mineral treasures of New South Wales, and still less has been accomplished in the way of their development. The list of minerals known to exist in the country comprises some of the most important, both as regards utility and commercial value. Freestone for building is plentiful in the Coast District, and is found of excellent quality at Sydney. On the Table Lands and Cordillera, granite and its varieties may be obtained in abundance; it also is used for building purposes. Limestone is very generally distributed, but not in large quantities, throughout the Coast District and the Table Land. The upper portions of the valleys of the Hunter, Shoalhaven, Wollondilly, Abercrombie, and Murrumbidgee, the valley of the Macquarie in the Wellington district, and Monaro and Yass Plains are the principal localities in which deposits of limestone are found. In some instances, as in the basins of the Shoalhaven and Wollondilly, the limestone passes into marble of fine quality and varying in color from pure white to jet black. Slate is abundant on the Table Lands, and the kind used in roofing houses is occasionally met with. Deposits of porcelain clay, resulting from the decomposition of granite, are found upon the Table Lands, and brick clay is abundant in most parts of the colony. Meerschaum has been found in the Northern Table Land, in the neighbourhood of

Tenterfield; and Plumbago, at Dundee, and on the banks of the Northern Rocky River, a tributary of the Clarence. At present, Salt is known to exist on the banks of the Talbragar.

50. COAL.—That most valuable of minerals, coal, is found in great abundance in many parts of the colony. The principal of the coal-fields yet discovered is situated in the coast district, extending from the Hunter valley on the north nearly to the valley of the Shoalhaven on the south, and bounded on the west by the Blue Mountains. Coal mining is carried on to the largest extent on the lower Hunter and in the Illawarra District. But beds of coal have also been observed in the Vale of Clwyd in the Blue Mountains; on the Western side of the Talbragar River; the valley of the Peel River; the Gwydir district; New England; and the Clarence and Richmond Valleys.

51. METALS—GOLD.—Among the metals found in New South Wales, Gold occupies the first rank, both on account of its value and the attention paid to the search for it as a branch of productive industry. As a general rule, the deposits of gold are confined to the Cordillera and the Table Lands. Very recently gold has been discovered on the western verge of the Southern Table Land on the banks of the Lachlan, and at Burrangong, farther south. It is usual to arrange the various gold fields into Northern, Western, and Southern. The Northern Gold Fields include the

following localities :—Timbarra, on branches of the Clarence River; the Rocky River; the Peel River and its first tributaries; and Bingera, on an affluent of the Gwydir. The Western Gold Fields occupy numerous localities in the basins of the Macquarie and Lachlan, the head waters and tributaries of which are all more or less auriferous. Among the more productive may be specified—the Turon, the Meroo, the Cudgegong, and the Abercrombie; but some of the minor streams are also very rich. The gold-fields situated in the vicinity of Braidwood; Kiandra, at the head of the Snowy River; Adelong, on some of the tributaries of the Murrumbidgee in its middle course; and Burrangong, on creeks which ultimately, perhaps, find their way into the Lachlan; are reckoned among the Southern Gold-fields. In this list, only the most important localities are mentioned; but there are numerous other places in which gold is found and worked.

52. SILVER.—Silver is known to exist in New South Wales in combination with lead, but has not yet been found as a separate ore. The best known localities from which silver may be obtained are in the neighbourhood of Bathurst, Talwal Creek, and Moruya; but it is also found in the northern portion of the N. Table Land, near Tenterfield.

53. IRON.—Iron is very generally distributed over the surface of the colony. Several of the more valuable ores exist in great abundance, and give promise

of being a source of future wealth. In general, iron is found in all the gold regions, and its existence has been discovered in the upper Shoalhaven Valley, on the Talbragar, and in the Mittagong Range. The ore has hitherto been worked in the last mentioned locality only, where it is of extraordinary richness.

54. **LEAD.**—The indications of the existence of lead are numerous. In the Manero District, especially in the basin of the upper Murrumbidgee; in the Gourcock Range, in the lower Shoalhaven Valley; on the upper Macquarie; and in New England; it has been met with in considerable abundance, though little has yet been accomplished in the way of productive mining.

55.—**COPPER.**—In addition to gold and iron, copper may be regarded as one of the characteristic metals of New South Wales. The metalliferous region lying between and around the 149th and 150th meridians abounds in copper ores of fine quality and varying degrees of richness. In some instances, large quantities of the pure metal have been discovered. North of the 32nd parallel, the mineral region lies farther to the eastward. The copper lodes have been worked at Coombing, Summerhill, Cornish Settlement, and the Canobolas.

56. **OTHER METALS.**—*Tin* is known to exist in small quantities in all the gold-fields of the colony, but it has not yet been made a special object of search.

Antimony and *Arsenic* have also been discovered in various parts of the colony, but chiefly in connection with gold. *Manganese* is known to exist near the Bell River, a tributary of the Macquarie. Minute quantities of rarer metals and minerals are also found, —such as platinum, iridium, nickel, and titanium.

57. PRECIOUS STONES, &c.—*Rubies*, *sapphires*, *garnets*, and, to a small extent, *diamonds* have been obtained from the detritus found in the beds of rivers, chiefly in the gold-producing regions. *Sx*

CHAPTER VI.

VEGETABLE PRODUCTIONS.

58. GENERAL CHARACTERISTICS. — The vegetable productions of New South Wales, as of Australia in general, differ to a remarkable extent from those of the rest of the world, in appearance and structure. With scarcely an exception the trees are evergreens, and owing to the dull and sombre hue of the leaves, they give a dark but monotonous appearance to the landscape. "The course of the seasons even, which in extra-tropical countries causes the leaves to fall and diversifies the foliage with the bright fresh verdure of spring or the gorgeous and variegated tints of autumn, has no influence upon the unvaried mantle of olive-green which clothes the forests of Australia."* The leaves of a large proportion of the trees are distinguished by the further peculiarity of being fixed vertically, instead of horizontally, so that they cast but little shade when compared with the forest-trees of other parts of the world. In many cases, also, both sides of the leaf are alike and possess the same organs. The following observations refer to the more remarkable of the vegetable productions of the colony.

* Strzelecki.

59. THE ACACIÆ FAMILY. — The family of the *Acaciæ* furnishes the greatest number of trees, upwards of a hundred species being known to exist in Australia. During the flowering season, the districts in which they flourish are profusely decorated with their gay yellow blossoms, and the woods are redolent with their powerful odour. Some of them having been used by the early settlers for the purpose of wattling the partitions of houses, they are commonly known by the name of "Wattles." In general, they do not attain any great size, and the timber is of little value. The bark of one of the most common, the "Black Wattle," is used for tanning, for which it is well adapted. Another of this family, the Myall, is an elegant tree, remarkable for the beauty of its wood and its delicious odour of violets. It is only found on the great plains of the interior.

60. THE EUCALYPTI.—Next in point of numbers, but superior in commercial importance, are the various species of *Eucalyptus*, or Gum Trees, which may be found in all parts of the colony, from the snowy heights of the Muniong to the semi-tropical heats of the Clarence district. Some species shed their bark periodically, and all exude a hard astringent gum, from which circumstance they derive their common name. After rain, or when crushed, the leaves of all the species give out a powerful odour resembling camphor. Among the more remarkable members of this family are the *Ironbark*, noted for the hardness, strength, and durability of its wood; the *Stringy-bark*,

from which the bark may be stripped in large sheets; the *Mahogany*, equal in durability to Ironbark; the *Blue, Red, White, and Spotted Gums*; and the *Manna*, which yields a peculiar substance slightly resembling manna.

61. **CASUARINÆ, PINES, AND BANKSIAS.**—Several species of *Casuarina* are found in the colony, being popularly known as "Oaks," to the timber of which tree their wood bears a slight resemblance, though their general appearance would rather entitle them to be called "firs." The timber is very useful. The tree designated the "Silky Oak," belongs to another family (*Grevillea*) and furnishes valuable timber. The *Banksias* are a numerous tribe with peculiar flowers of various colours, shaped like a bottle-brush. From the quantity of honey they contain, they are popularly called Honeysuckles. The timber is useful in ship-building. Another remarkable plant widely distributed throughout the colony is the so-called Grass Tree (*Xanthorrhoea*), which produces a flower resembling that of a bulrush. A powerful astringent gum is obtained from this plant.

62. **PLANTS PECULIAR TO COAST REGIONS.**—The foregoing families of plants are distributed over the whole of New South Wales; those about to be mentioned have a much more limited range, being confined to the Coast District. One of the most important is the *Cedar*, producing a wood of the most valuable description, and which is used for the finer kinds of

carpenter's work and in the manufacture of furniture. The cedar requires a rich soil, and is obtained principally from the alluvial flats lying along the lower courses of the eastern rivers. It is also found on the slopes of the Liverpool Range, where the soil, being formed by the decomposition of trap-rock, is of high quality. Cedar may also be procured from certain parts of the Blue Mountains in the vicinity of Mount Tomah, where the soil is of the same description, and in the deep gullies and ravines. It appears to be restricted to the eastern side of the cordillera. A tree known as the White Cedar, but belonging to an entirely different family, is confined to the same district; it is one of the few deciduous trees indigenous to the colony.

63. Another family of trees limited in range to the Coast District, is the *Fig* tribe, of which several species are known. They are remarkable for the immense size they attain, and the peculiarity in their manner of growth. Like the Banyan tree of India, the Fig sends down suckers from above, which cling to the side of the trunk and finally unite with it, forming high buttresses. The wood is of no value, and the fruit is eaten by birds only. The Cabbage Palm is found in rich soils along the whole of the coast northward of the 35th parallel, but is particularly abundant in the Illawarra District. It is also found in the part of the Blue Mountains known as the Currajong. This palm is a graceful tree rising to the height of sixty or eighty feet. It forms a peculiar and interesting

feature in the landscape, to which it imparts a semi-tropical aspect. The Gigantic Nettle, or Stinging Tree, is also indigenous to the rich brush lands bordering upon the coast. Its average height is about forty feet, but specimens have been known to reach an elevation of a hundred and twenty feet. The leaves are large, often a foot in length, and of a vivid green when young. Their under surface is furnished with minute barbs which secrete a poisonous fluid. The sting consequently causes great pain and some danger. In the thick brushes, horses and cattle are liable to be stung by coming in contact with the nettle, and, the former especially, then suffer severely, the sting sometimes proving fatal. Tree Ferns of great size and beauty are found in the same localities.

64. INDIGENOUS FRUITS.—It is somewhat remarkable that, as far as is yet known, there is in New South Wales no indigenous fruit or root capable of affording sustenance to any considerable number of human beings. In the great plains of the interior, a tree called the Quandong is found, bearing a fruit somewhat resembling a small peach in size but crimson in colour when ripe. Its taste is astringent. Another fruit resembling a plum grows in Illawarra; it is not eatable. The Native Cherry is the fruit of the *Exocarpus*; the stone is outside of the pulp, which is insipid. Another tree produces what at first sight appears to be a pear—hence called the *Native Pear*—but which, on closer inspection, proves to be only a wooden husk enclosing a small flat seed.

65. FLOWERS.—As if to compensate for this deficiency in fruits, the flowers of New South Wales are in many cases extremely beautiful. Perhaps the most beautiful is the Waratah, commonly called the Native Tulip. It has a slender woody stem, from four to six feet in height, and is crowned by a large flower, which at first is of a delicate pink colour, but afterwards, as it expands, deepens into a brilliant scarlet, and finally a rich crimson. The Christmas Tree—so named from its use as a decoration at that season like the English Holly—is abundant on the east coast, and extends westward over part of the Blue Mountains. Another splendid flower is the Gigantic Lily, which grows to the height of twelve feet, and bears on its head a cluster of crimson flowers nearly a foot in diameter. The so-called Rock Lily bears a spike of pretty wax-like flowers. The Acacia flowers have already been mentioned. Of humbler pretensions, but still very beautiful, are some species of *Epacris*, which represent the Heaths of corresponding latitudes in Africa.

66. PLANTS PECULIAR TO THE TABLE LANDS.—The Table Lands appear to have no specially characteristic vegetation, and these districts are, indeed, less thickly timbered than the coast region. Some of the eucalypti and acacias are, however, peculiar to the Table Lands; and the high mountain ranges abound in plants of an Alpine character.

67. PLANTS PECULIAR TO THE PLAINS.—The vegetation of the Great Plains has some peculiarities. The

sandy portion is usually covered with low scrub and a few large trees, as gums and pines; but where the rich soil prevails, the myall forms the principal timber plant. Luxuriant grasses also abound, and sometimes grow to the height of six or eight feet. Another characteristic plant is the Salt-bush, so called from the saline matter it contains, and which causes it to be much liked by cattle and sheep. Certain parts of the Great Plains are covered with dense, impenetrable scrubs, called in the south the Mallee, and in the north, the Brigalow scrub. The former is a kind of dwarf eucalyptus, thick and bushy; the latter is a species of acacia, with rigid leaves and prickly spines. In the lagoons of the interior a very beautiful flower is found, called the pink Lotus. It has a large circular leaf sometimes two feet in diameter, and an odorous rose-coloured flower measuring six inches across.

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CHAPTER VII.

ANIMALS AND THEIR DISTRIBUTION.

68. GENERAL CHARACTERISTICS. — The animals of New South Wales, whether extinct or recent species be regarded, are not less remarkable and peculiar than its vegetable productions. In fact, a naturalist whose observations had been confined to other parts of the world, and who had there formed his conceptions of the appearance, habits, and character of various genera and species, would discover, on extending his researches to Australia, that his preconceived notions would often be modified, and sometimes directly contradicted by his new experience. This statement will receive illustrations in subsequent remarks.

69. ANIMALS PECULIAR TO THE COAST. — Commencing at the bottom of the scale of animated beings, we find the coast abounding in various species of the radiate animals, especially the jelly-like substances commonly termed Sea-Nettles, from their stinging powers. A kindred animal is the *Physalia*, or Portuguese Man-of-war. This remarkable creature consists of an "inflated bladder glowing in delicate crimson tints" and long tentacula or feeders of a deep purple, extending beneath to a depth varying from a few

inches to two feet. When touched, they are capable of inflicting a most painful sting. The Echinus or Sea-Hedgehog, is also an inhabitant of the coast waters. Oysters are found attached to the rocks, or buried in the mud and sand; they are of good flavour, and sometimes contain pearls. Prawns of large size, and a species of Crayfish, locally termed the Lobster, are also abundant. Several kinds of Crabs are common, but do not require individual notice. The sea and the mouths of the great rivers literally swarm with fish, many kinds being excellent food, as the Schnapper, Gar, and Mullet. Others are remarkable for their size and destructive powers, as the Swordfish, Sawfish, and Shark. Of the latter there are several species found in the Australian seas, and one, the Port Jackson Shark, appears to be limited to that locality. It is remarkable as being the most common existing representative of an extinct genus of fishes now found among the fossils of the secondary strata, but which once peopled the seas of the northern hemisphere. / Of curious fishes, the Flying-fish, the Glass Eel, and the Hippocampus or Seahorse are the most noted. Formerly Seals appear to have been abundant on the coast, but are now restricted to a few localities. Whales, both Black and Sperm, are frequently seen and occasionally visit the bays and inlets for the purpose of calving. One species of Sperm Whale appears to be peculiar to the Australian Seas. Two kinds of Water Snakes are known to infest the coast, and are sometimes thrown upon the shore by storms. One species, the

Pelamis, is harmless; the other is very venomous, as are most of the members of this family. The Turtle is occasionally found near the northern boundary of the colony, but is much more frequently met with on the coast of Queensland. Among the sea-birds that haunt the coast, the most remarkable are two or three species of Albatross—the Wandering Albatross being the most conspicuous. Several species of Gulls, Petrels, and Terns also abound.

70. LAND ANIMALS, INSECTS, &c.—The land animals of New South Wales are distributed with tolerable regularity throughout its whole extent, the difference of climate having but little effect. Beginning, as before, at the bottom of the scale, we first notice the Leech, which is abundant in the swamps and fresh water lagoons on the Table Land. Another kind is found on the land, in the thick brushes of the Illawarra and other coast districts. Among the insect tribes, the mosquitos and sandflies require to be mentioned on account of the annoyance they occasion, which, however, is not experienced on the Table Lands. Ants of various kinds are abundant, one species being an inch in length and armed with a formidable sting, with which it inflicts a painful wound. The native Bees are small in size and stingless; their honey differs from that of the Honey Bee in appearance and flavour. The Tree-hoppers, called in the colony Locusts, are remarkable for their shrill, incessant noise—like the Cicada (or Cicala) of southern Europe. The true Locust is not found in

New South Wales, but large kinds of Grasshoppers are abundant. Many beautiful Butterflies of rich colours are to be seen, as also those curious insects, the Mantis and Walking Stick, resembling animated leaves and twigs. Several Beetles and a species of Bug are indigenous; Spiders of large size and some of curious habits are also common. The Tarantula and the Centipede are both venomous, but not to a dangerous extent. Specimens of the latter have been found eighteen inches in length. There are two or three insects which are luminous in the dark, like fireflies. Crayfish are found in the ponds, or "water-holes," of the interior, west of the Dividing Chain; and in the rivers, a fine fish commonly known as the Murray River Cod, being named after the stream in which it was first obtained and where it is still peculiarly abundant. A fish resembling the Carp is found in the creeks and waterholes in the interior, and Eels abound in the eastern waters. + /::

71. REPTILES. — The reptile class is well represented. Among the Frogs is one wearing a livery of green and gold, and another is the Tree-Frog, which is enabled to climb trees by the suckers on its feet. Several species of freshwater Tortoises of small size are found on the Table Lands and west of the Dividing Chain, and one at least is known to inhabit the Coast District. Of Lizards, there are numerous varieties. The largest is popularly termed the "Guana," for "Iguana," but the name is improperly applied. The Guana attains a length of from two to

six feet, and is carnivorous. Some of the lizards are serpentlike in their appearance, being wholly without external legs. Snakes of five different families are found in various parts of New South Wales, two of which, including the greatest number of species, are highly venomous. Of the non-venomous snakes, the more conspicuous are the Diamond and Carpet Snakes, which represent the Boas of intertropical America. These are strictly nocturnal in their habits, as is also the Brown Tree Snake which, however, belongs to a different family. The Green Tree Snake is a handsome creature, diurnal in its habits, and living upon insects. The Viper family supplies the most deadly snake found in the colony—the Death Adder, which is widely distributed throughout the country, but is most frequently found in dry sandy situations. All the other snakes at present known belong to one family, the Elapsidæ, and all are venomous. The Black Snake is, perhaps, one of the most common; it is of a black colour on the back, and red beneath. The Brown Snake is remarkable for its habit of turning when chased, and darting at its pursuers. On this account it has been named the Darting Snake. The Whip Snake, so called from its appearance resembling the thong of a whip, is also common. To this list may be added the Yellow Snake, which has the power when irritated of expanding the sides of its neck into a broad flat hood, and is highly venomous. This snake, and seven other members of the same genus—*Hoplocephalus*—are peculiar to Australia.

72. BIRDS.—The Birds of New South Wales are remarkable for the beauty of their plumage, the oddity of their appearance, or some peculiarity in their habits which distinguishes them from birds belonging to the same family in other parts of the world. None of them possess power of song worthy comparison with the strains of European song-birds. More than twenty members of the Falcon family are known to inhabit New South Wales. Among these may be specified the Wedge-tailed Eagle, which is of large size, bold and fierce. It is a characteristic of Australian eagles that they do not disdain to feed on carrion. A White Hawk, with eyes either yellow or red, is not uncommon. Six species of Owls inhabit New South Wales. One of these, the Boobook, is popularly called the Australian Cuckoo, on account of its cry which strongly resembles that of the latter bird, but is uttered principally at *night*. Among the passerine birds of New South Wales are several species of Podargus, one of which is named by the colonists "More Pork," from its singular cry. An allied bird is the New Holland Goatsucker. The Swallow family is represented by the Australian Swift (sometimes called the Needle-Tailed Swallow), the largest of the whole tribe; by the Fairy Martin, which constructs flask-shaped nests; and by other less known species. The Dollar Bird belongs to an allied family, and receives its name from a circular white spot on the inside of each wing. The Laughing or Giant Kingfisher differs

in habits from most of its congeners in not catching fish. Its odd appearance and strange cry, resembling the wild laugh of a maniac, render it a somewhat remarkable bird. Several other members of this family are also found, conspicuous among which are the Australian, the Tiny, and the Azure Kingfishers. Among the slender-billed birds, the Rifle-Bird is one of the most remarkable, being, according to Gould, the most gorgeous of all Australian birds. The *Dicaeum* weaves a white, purse-shaped nest, and suspends it from a branch on the top of a tall tree. Several species of Honey-eaters are common, the most remarkable being the Bell-Bird, so called from its note, which resembles the tinkling of a sheep-bell. Another example of this genus is the Friar Bird, which has a bald head as if shaven, and the Wattle or Gill Birds, which have fleshy wattles on each side of the head. The family of Creepers, consisting for the most part of very small birds, has, among others, a representative in the magnificent Lyre Bird which obtains its popular name from the graceful form and arrangement of its tail feathers. This beautiful bird is confined to the eastern portions of the colony, but has been seen as far to the west as the Tumut Range. The Tooth-billed tribe has many representatives. The Pinc-pinc, though a small bird, constructs a nest of large dimensions and shaped like a gourd, the entrance being through the neck. The Emu-Wren has tail-feathers similar in structure to those of the emu, and another bird of the

same genus is prettily marked with bright blue. The Flycatchers are remarkable for the oddness of some of their habits and the singular form and neatness of their nests. Another genus is represented by the Diamond Bird, which, in addition to its beautiful marking, is remarkable for its habit of constructing its globular nest in a burrow of its own making. Several species of Wood Swallow are common. Birds of the Cone-billed tribe are numerous in New South Wales. The Magpie, as the Piping Crow is popularly termed, is well known for its strange habits and imitative powers. The Crow differs in voice from the Crow of the Northern Hemisphere, possessing a greater variety of notes. The Bower Birds, of which two species are known, construct bowers or arbours, and ornament them with any gay material procurable. The use of these structures is not well understood. The Gouldian Finch is a beautiful little bird, though destitute of the powers of song which characterise the family in other countries.—New South Wales is distinguished for the number, variety, and beauty of its scansorial birds. Parrots and Cockatoos are especially numerous. Of the former, the Rosehill Parrakeet, the Cockatoo Parrakeet, and the Grass Parrakeet, are remarkable for beauty of form or plumage. The Sulphur-crested Cockatoo is a very common bird, and the Banksian Cockatoo is remarkable for its rich black colour. The Cuckoo family is represented by the Pheasant Cuckoo, a remarkably handsome bird, bearing some

resemblance to a pheasant. The Channel-bill is a curious bird belonging to the same family, and two species of Cuckoo are known to inhabit New South Wales. Several species of pigeon are found in New South Wales—the Topknot Pigeon and the Wonga Wonga being confined to the Coast District, the Crested Pigeon to the interior, and the Bronzewing migrating to some extent. Of the gallinaceous birds, there are two indigenous species which are remarkable for their peculiar habits in connection with rearing their young. They are the Leipoa and the Tallegalla—the Native Pheasant and Brush Turkey of the colonists. Both lay their eggs in mounds of earth and vegetable matter raised by themselves, the eggs being hatched by the heat generated through the fermentation of the mass. Quails of several species are also abundant. The Emu was formerly common in all parts of New South Wales, including the coast district, but is now confined to the great plains. A species of Bustard, commonly known as the Wild Turkey, inhabits the same region. Among the Wading Birds may be mentioned the Plover, various species of Cranes, Herons, and Ibises. The most remarkable are the great Australian Crane or Jabiru; the Nankeen Night Heron, and the Straw-necked Ibis. The Native Companion, two or three species of Spoonbills, the Bittern, the Curlew, and many smaller birds may be added to the list. That curious bird, the Avocet, and the Woodcock also deserve mention. The Cereopsis or Cape Barren Goose is

the first of the swimming birds that claims attention; it is found upon the coast. The magnificent Black Swan is peculiar to Australia, and is abundant in many parts of New South Wales. Several kinds of Ducks are also common, one species being remarkable on account of the habit of building its nest in a tree. The Darter and a large species of Pelican are found in the rivers.

73. MAMMALIA.—Several species of Bats inhabit New South Wales. One, which attains considerable size, is popularly known as the Flying Fox, from the resemblance which its head bears to that of the last named animal. These Bats sometimes congregate in vast multitudes in the brushes and forests of the coasts, apparently for the purpose of breeding, and commit great havoc among the fruit-trees. The only land animal representing the carnivorous order is the Dingo or Native Dog, which is spread over the entire continent, but is now believed not to be indigenous. The Beaver Rat and two or three species of Mice represent the rodent animals, the former resembling in some points the Water Rat of Europe. With two exceptions, all the remaining indigenous animals of the class Mammalia, belong to the Marsupial Order. Some of these are of very minute proportions, while others attain considerable size. They are divided into several genera, of which the following are examples. The Petaurists are furnished with a parachute-like expansion of the skin along the flanks and attached to the fore and hinder limbs. The

Flying Mouse, the smallest of the Petaurists, is a beautiful little animal about the size of the common mouse. It is common on the coast. The "Flying Squirrel" and the "Sugar Squirrel" are popular names of larger species of Petaurists; but the largest is known as the Taguan. The next genus, the Phalangists, are destitute of the parachute, but possess a prehensile tail. Two species are found in New South Wales where they are generally known as "Opossums." The most common species is the Vulpine Phalangist, so called on account of its fox-like appearance and nature. The Koala, or Native Bear, represents the next genus, and is destitute of tail. It is a peculiar animal, having a somewhat bearlike aspect, but resembling in its habits the Sloths of America. Like all the animals before mentioned, it is nocturnal. We next come to the Kangaroos and their congeners the Wallabys, Paddy-melons, and Kangaroo Rats. These are pretty generally distributed over the colony, though each species affects special localities, some the open plains or lightly-timbered forest lands; others thick brushes and scrubs, and others, rocky and broken places. The Bettongs and Kangaroo Hares bear a general resemblance to the Kangaroos; the Bandicoots and the Chæropus, although belonging to the same family, vary considerably in appearance and habits. The Wombat, or Badger as it is commonly called, differs greatly from the other marsupial animals, and more nearly resembles the rodents, being in some

respects very similar to the beaver. It is a nocturnal animal, and makes its habitation in a deep burrow. It is extensively distributed throughout New South Wales. The Dasyures, of which two species inhabit this colony, where they are popularly known as "Native Cats," are carnivorous in their food and nocturnal in their habits. The "Brush-tailed Phascogale" is an animal of similar habits, but is not so prettily marked as the Dasyure. There are also numerous species of pouched mice. Those curious animals, the Platypus and the Echidna, are peculiar to Australia and Tasmania. They are popularly known as the Duckbill and the Hedgehog.

74. EXTINCT ANIMALS.—It will be seen from the foregoing statements that the fauna of New South Wales is peculiar, and is chiefly marsupial. This statement applies even to the fossil remains which have been discovered. Among these is a gigantic species of the Wombat,—the *Notatherium*, which, when living, must have approached in size to the Hippotamus. Similar remains of an animal named *Diprotodon*, have been found, as also fossilized bones of giant Kangaroos, and the various other species of marsupial animals. The obvious inference is, that Australia was, even in former ages, tenanted by animals of the same kind as inhabit at the present day.

75. CLASSES OF ANIMALS.—In considering the mammalian animals of New South Wales, we are struck with two obvious facts. In the first place, we

notice the entire absence of many important orders—the quadrumanous, the pachydermatous, and the ruminant—and the presence of only one of the true carnivora, and that probably of recent introduction. Secondly, it would seem as if the marsupial order included creatures which might be accepted as representatives of various orders of animals. For example, the canine and feline families of carnivora are respectively represented by the *Thylacinus* and the *Diabolus Ursinus*—Native Wolf and Native Devil—which seem to be confined exclusively to Tasmania. The *Dasyurus* corresponds in some measure to the Weasel family, and the Koala in some respects to the Sloth, and in others to the Monkey. Besides the true rodents, these animals find a partial representative in the Wombat.

76. ANIMALS INTRODUCED.—It may not be out of place to remark here that all the common domesticated animals of Europe have been introduced into New South Wales, and have been found to flourish, so that it is now estimated that there are in the colony 5,500,000 sheep, 2,250,000 cattle, and 250,000 horses.

77. THE AUSTRALIAN MAN.—The native Man of Australia is usually said to belong to the Papuan or Austral-Negro race; but there are some reasons for believing that he has no very close affinities with any other class of human beings. The Aborigines have undoubtedly been under-estimated, both as regards physical and mental endowments, some writers having

described them as brutish in the extreme, and as ranking but little higher than the Gorilla. A more extensive experience of their good qualities has led to the formation of a more correct estimate of their relation to mankind in general. It is necessary to bear in mind, in speaking of the Aborigines, that they are marked by certain differences of appearance, language, and customs, which tend to prove that they are not all of the same race, and it is therefore difficult to describe them in any detail, and, at the same time, avoid misstatements. In colour, the Aborigines vary from a dark chocolate to black; the hair is black, coarse and lank, but sometimes curly or woolly; the eyes dark and brilliant; the nose prominent and the mouth large. They are, in general, slightly but strongly built, and the legs appear to be almost destitute of calf. The languages spoken by the Aborigines vary greatly, so much so that tribes residing at no great distance from each other are mutually unintelligible. Their speech is, however, generally euphonious, and as far as known seems to possess a great variety of inflections and a complicated syntax, resembling in this respect the languages of many barbarous nations. As regards manners and customs, laws, government, or religion, comparatively little is known with certainty, for owing to the jealousy of the Aborigines, the opportunities for observation have been small, and the persons who have enjoyed such opportunities have not known how to turn them to profitable account.

78. THE PRESENT POPULATION. — The original inhabitants of the country have been deprived of their possessions by the European colonists. These and their descendants now number 337,874 persons, of whom about 160,000 were born in New South Wales. As might be expected, England, Ireland, and Scotland furnish the largest proportion, 162,000 being of British descent. Other countries contribute to the population as follows:—

United States, America.....	1,067
France	690
Germany	5,467
Other foreign countries	2,742
China	12,986
Total.....	22,952

The numbers of each sex, exclusive of Chinese, are males, 185,502; females, 152,372; the proportion per cent. being nearly 55 males to 45 females. In the following table, the ages of the people are indicated, all under fifteen years of age being reckoned as children:—

	MALES.	FEMALES.	TOTAL.
Children	67,049	66,172	133,221
Adults	131,439	84,726	217,639

The population has nearly doubled in ten years. The distribution of the population may be thus exhibited:—

Coast District	63 per cent.
Table Lands	25 „
Great Plains	12 „

Assuming the area of the colony to be 323,437 square miles, there would be on an average about one inhabitant to the square mile. In the county of Cumberland, inclusive of Sydney, the average is about 86, or, exclusive of Sydney, 47 persons to a square mile. In the old settled counties, the average is nearly seven persons to a square mile; but on the pastoral districts of the great plains, the population barely averages one person to four square miles.

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CHAPTER VIII.

INDUSTRIAL OCCUPATIONS.

79. GENERAL REMARKS.—New South Wales exemplifies to a remarkable degree the truth of the proposition that the occupations of any people will depend, to a great extent, upon the physical geography of the country they inhabit. It will be found that, speaking generally, the occupations of the people are different in the three physical divisions of the colony.

80. AGRICULTURE.—The cultivation of the soil is confined principally to the coast region, especially the valleys of the rivers on the eastern slope, and to portions of the Table Lands, while it is scarcely attempted on the great plains. The objects of cultivation vary greatly according to the soil and climate of the different districts. In the deep rich alluvial soil bordering upon the eastern streams, *Maize* is the staple product, and of this grain about one and a half millions of bushels are raised annually. Of late years, various kinds of millet have been introduced, and one, the *Sorghum Saccharatum* is grown chiefly for use as fodder, though some attempts have been made to manufacture sugar from this plant. *Wheat* is successfully grown upon the same soils, and perhaps to greater perfection in the county of Camden, and on

the Table Lands, which, from their lower annual mean of temperature, are better adapted to the cultivation of the hardier cereals. In the warmer districts of the colony, wheat is subject to the ravages of certain insects which render it impossible to preserve the grain long after harvest, but this inconvenience is not felt on the Table Lands. Under favorable circumstances as regards soil, season, and skilful cultivation, the wheat of New South Wales equals, if it does not surpass, that produced in any part of the world; and as a general rule, it is found to possess a larger portion of nutritive ingredients than is common. The poorer soils in the counties of Cumberland and Camden are much used for the cultivation of *Oats*, principally for use as fodder, the plant being cut while green and made into hay. In the same localities *Barley* is cultivated chiefly as a green crop, little use being made of the grain itself, either as meal or for malting. The *Potato* is cultivated on the alluvial soils of the coast rivers, and also upon the Table Lands, and in both cases with great success. Attempts have been made on, a very limited scale, to grow the *Sugar-cane* on some of the northern rivers, where the climate approaches more nearly to the tropical character; the issue of these experiments up to the present time is doubtful. Many districts of the colony seem to be peculiarly adapted to the cultivation of the *Grape* and the production of wine. Three districts may be specially noted:—the Hunter River Valley; the Counties of

Camden and Cumberland; and the upper portion of the valley of the Murray. The Hunter Valley and the districts bordering upon the sea to the north and south of Sydney are also well suited to the *Orange*, which fruit in ordinary seasons, is produced in surprising quantities, and forms an important item of exportation to the neighbouring colonies. Other fruits, as the *Peach*, *Nectarine*, *Apricot*, *Plum*, &c., are also produced in the warmer districts of the colony in large quantities. The neighbourhood of Sydney is particularly celebrated for its orchards. In the colder districts, English fruits, *Gooseberries*, *Currants*, &c., flourish, but are not made objects of cultivation to any noteworthy extent, as the distance from market and defective means of communication render the task of growing them unprofitable. The *Fig* and many semi-tropical fruits are cultivated in the warmer districts. *Lucerne* is grown to a great extent on the Hunter River for hay, and is largely exported. *Tobacco* still receives the attention of some agriculturists, though the cultivation of this plant has greatly declined of late years. As the price of manufactured tobacco, however, has greatly advanced, it is probable that large quantities will henceforward be grown, and that this article will become one of the most important objects of tillage. The localities suited to the production of tobacco are the rich alluvial soils on the banks of the eastern rivers, especially in sheltered valleys. Up to the present time, *Cotton* has been grown only as an experiment, but from the suitability

of the soil and climate in the coast district, there is good reason to believe that in the course of a few years, this plant will be included among the staple products of the colony. The cultivation of the *Mulberry-tree* with a view to the production of silk has excited some attention, and it seems to be very generally admitted that this branch of industry can be profitably followed, but as yet little has been accomplished towards rendering it one of the recognised pursuits of the agricultural class. The *Olive* flourishes in the coast region, and eventually the cultivation of this tree and manufacture of oil will, in all probability, afford occupation to great numbers of colonists, and supply the demand now met by large importations from England. It is calculated that about one-third of the inhabitants of the colony are engaged or interested in agricultural pursuits.

81. PASTURAGE.—The breeding and pasturing of cattle, as a separate pursuit, is carried on to some extent on the Table Lands; and, to the exclusion of almost every other occupation, on the Great Plains of the interior. Sheep, horned cattle, and horses are reared in immense numbers, and the various products obtained from them furnish a considerable proportion of the exports of the colony, besides supplying articles of food, clothing, and domestic use for home consumption. It is estimated that there are now in New South Wales—

6,000,000 Sheep.
2,500,000 Horned Cattle.
250,000 Horses.

These animals are depastured upon large unenclosed tracts of country termed "runs." The owners or persons in charge live at the "station," where, in general, folds for sheep and stockyards for cattle are erected. Sheep require to be driven out to feed during the day and to be brought back to the fold in the evening; but, except in case of disease, or during the lambing and shearing seasons, generally give but little trouble. They are usually kept in large flocks of from one to two thousand in number. Cattle being less gregarious, and requiring a larger supply of food, distribute themselves over the run in small herds, or "mobs." They require no attention from the "stockman," as the person is called who has the care of them, except to ride over the run to see that they do not stray. At the time of *mustering*, which may be done either for the purpose of branding, or selecting fat cattle for market, all the cattle upon the run are gathered in large herds and driven into the stockyard. This is a laborious and often dangerous process, the cattle being apt sometimes to turn upon their pursuers and "charge" them with their horns. The stockmen, by dexterity in managing their horses and skill in the use of the formidable stockwhip, generally contrive to escape unscathed, but occasionally man and horse go down before the furious rush

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of a wild bull or enraged cow. Horses are treated in the same manner, the only difference being that from their superior fleetness they are more difficult to "yard." In riding after both horses and cattle, the stockman is compelled to gallop at full speed over all kinds of ground—rocky, slippery, or boggy, and is still further endangered by fallen timber, waterholes, and watercourses, or "creeks." Notwithstanding the ardour with which the chase is maintained, accidents are of comparatively rare occurrence. A good "stock" horse soon becomes acquainted with the duties expected of him, and then needs little guidance from his master; he appears to enjoy the sport as well as his rider; and, when sound and in proper condition, endures the day's galloping without distress, and saves himself and his rider from the dangers that lie in their way. The number of persons engaged in or connected with "squatting," as this form of grazing is called, is about fifteen thousand. The products are, wool, of which about 13,000,000 lbs. were exported in 1861; tallow, beef and mutton, obtained by boiling down cattle and sheep, 3000 tons; hides, 110,000; horns and bones, 7000 tons. The value of those products may be thus estimated:—

Wool	£1,250,000
Tallow	50,000
Hides	13,000
Bones and Horns	5,000
Fat Cattle	400,000

82. MINING.—The varied mineral productions of the colony give employment to large numbers of people; and when the population has increased, and the country has been more minutely explored, this branch of industry will undoubtedly receive very extensive developments. At present, mining operations are confined to the Table Lands and the Coast Region. In the latter district, *Coal* is the chief object of search. The only coal-fields now worked to any great extent are those of Illawarra and the Hunter Valley, though the mineral in question is found in considerable abundance in other portions of the colony. In the places named, mining operations are constantly increasing in extent and importance, and the raising of coal promises to become one of the staple occupations of the country, and the material itself one of the leading articles of export. No fewer than 340,000 tons of coal were raised in 1861, of which 200,000 tons were exported. Hitherto coal-mining in New South Wales has been attended with few of the engineering difficulties, and none of the dangers to human life that in England and other parts of the world render this pursuit hazardous to the miner and embarrassing to the capitalist. The mines not being of the enormous depth of those worked in the English coalfields, are not liable to flooding, and are comparatively free from *firedamp* and *chokedamp*, which so frequently prove fatal to life. Only one accident from *firedamp* is known to have occurred up to the present time.

About a thousand persons are employed upon the coal mines. The number of persons engaged in the search for *Gold* fluctuates greatly, but ranges usually from 20,000 to 40,000. The localities in which this metal is obtained in any quantity are situated either on the Table Lands or in connection with mountain ranges branching from them. These localities have already been described in some detail. The quantity of gold known to be procured during the last seven years was about two millions of ounces, valued at nearly £8,000,000 sterling. In addition to this, it is probable that a large quantity of gold was obtained, but being kept in the hands of the finders or carried by private parties to other colonies, the amount was never recorded. It is estimated that gold to the value of £18,000,000 has been obtained from the mines of the colony, since the first discovery in 1851. A few persons are occupied in mining for *Silver* in conjunction with other metals, and it is probable that the number will ere long be greatly augmented. *Copper* of the best quality is plentiful in various parts of the colony, but is not systematically worked, except in the western portion of the southern Table Land. From the abundance of the metal, copper mining is capable of vast extension, and with increased population and improved roads will doubtless afford employment to great numbers. At present, the only mines worked are in the neighbourhood of the Canebolas and at Summerhill. *Iron* was until lately raised and smelted

at the Fitzroy mines near Berrima. Up to the present time, mining for other metals can scarcely be said to have commenced, notwithstanding that the existence of many valuable mines is well known.

83. FISHERIES.—The coasts of New South Wales abound in fish of excellent quality and various kinds. Comparatively little has been done, however, towards the establishment of this branch of industry; and some departments formerly carried on with great vigour, have either greatly declined or have been abandoned altogether. For example, the whale and seal fishery formerly gave employment to a considerable number of people, and was a highly remunerative pursuit, but for some years past it has languished, and has passed into other hands, chiefly American. The oyster, shrimp, and lobster fisheries still employ a few persons, but there is no doubt that these branches can, and will, be extended very largely as the population increases.

Manufactures.—Up to the present time, the manufactures of the colony have been restricted to materials intended for home consumption, with the exception, perhaps, of tallow and leather. Since the gold discoveries, several of the most important colonial manufactures have declined, but now appear to be in process of revival. Brewing and distilling are carried on to some extent, and the

manufacture of soap and candles has assumed a position of considerable importance in Sydney and most of the larger towns of the colony. The production of tallow from boiling down cattle and sheep appears to be gradually diminishing in amount and importance; but the carcasses of the slaughtered animals are now used in supplying food in the form of preserved meats of various kinds—charqui, pemmican, and concentrated soup. Materials for building, such as bricks, lime, and timber, requiring some degree of manufacturing skill in their preparation, are also used in considerable quantities; while the excellent wood of the cedar furnishes occupation to the makers of furniture. Tobacco is both grown and manufactured in the colony, and this branch of productive industry will probably increase in future years. Of late the quantity of manufactured tobacco has averaged about 75 tons annually. Working in metals employs a considerable number of persons, and still more are engaged in the manufacture of leather, for the production of which the colony affords peculiar facilities in the various kinds of bark suitable for the purpose. The manufacture of woollen cloth is again rising into importance, and furnishing occupation for large numbers of workmen. Besides those enumerated, there are manufactures of many kinds carried on in the colony, but they are chiefly *domestic*, i.e., pursued in the homes of the manufacturers, and not requiring the assistance of machinery.

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84. **COMMERCE.**—The commercial dealings of the colony may be divided into foreign and inland trade, in which latter is included the coasting trade. Probably as many as 11 per cent. of the adult male population are connected with trading pursuits more or less closely, exclusively of seamen employed in coasting vessels. This branch of industry is therefore of great importance. The foreign trade is carried on with—1. The United Kingdom; 2. The Australian Colonies, including New Zealand; 3. Various European countries, including Holland, Spain, Portugal, Germany, France, and Sweden; 4. United States; 5. China; 6. Manila; 7. India and the East Indian Islands; 8. The South Sea Islands and New Caledonia; 9. Mauritius; 10. Aden and Suez; 11. Chili. The value of the imports into the colony may be estimated at about seven millions and a half sterling yearly, and the exports at five millions. The total amount of capital employed in the foreign trade of the colony is, therefore, about twelve millions sterling annually.

Among the imported articles most deserving of notice may be mentioned—1. Manufactured goods of various kinds, such as cotton, linen, woollen and silk fabrics; cutlery, hardware, implements, machinery, clocks and watches; glass, porcelain, and earthenware; cordage, rope, furniture. 2. *Metals*, unmanufactured—Iron, tin, lead, and copper. 3. *Foods*—Flour and grain, fruits, tea, sugar, coffee, confectionery, fish, oilmen's stores, spices, potatoes, bacon and hams, salt, butter and cheese. 4. Wines, spirits, and fermented liquors. 5. Clothing,

haberdashery, hats, bonnets, hosiery, and gloves, india-rubber, leather (boots and shoes), millinery. 6. Drugs and chemicals. 7. *Building materials*.—Bricks, slates, timber. The principal exports, being the production or manufacture of the colony, are bark, butter and cheese, candles, drays, *coal*, *coin* (gold), eggs, fish, flour, fruit, furniture, *gold*, grain, gum, hay, honey, horsehair, leather, lime, *live stock*, machinery, provisions, skins, soap, *tallow*, timber, tobacco, wine, and *wool*.

85. TABLE OF EXPORTS AND IMPORTS.—The following table shows the character of the trade with each of the countries already mentioned, as indicated by the nature of the imports and exports:—

IMPORTS.	COUNTRY.	EXPORTS.
Cotton, woollen, linen, and silk manufactured goods; cutlery, hardware, implements, and ma- chinery; clocks, watches, and jewellery; glass, porcelain, and earthen- ware; iron, tin, lead, and copper; drugs and chemi- cals; leather goods; clothing and millinery goods; stationery; oil- men's stores and dry- saltery; wines, spirits, and fermented liquors. £4,150,000.	The United Kingdom.	Wool, hides, horns, bones, and tallow; oil; timber; gold and coin. £1,400,000.

IMPORTS.	COUNTRY.	EXPORTS.
<p>Agricultural produce,— tobacco, grain, flour, po- tatoes, hay, fruit, plants, and seeds; butter and cheese; tallow and skins; beef and pork; wine and spirits; coffee, gum, and timber; oils, opium, spices; copper, gold dust, and specie.</p> <p>£1,700,000.</p>	The Australian colonies.	<p>Agricultural produce, —tobacco, grain, flour, potatoes, fruit, hay, plants, and seeds; but- ter and cheese; beef and pork; wine, spirits, and beer; coffee; oils, oilmen's stores, opium, salt, soap, sugar & tea; fish, arrowroot, sago, confectionery; live stock; stationery, appa- rel, leather, linen and drapery woollens; tim- ber, carts & drays, turn- ery, furniture; hard- ware, iron, machinery, matches, guns, and am- munition; coal & lime.</p> <p>£2,600,000.</p>
<p>Fruits, grain, live stock, wines, spirits, timber, matches, furniture, glass, hats, clothing, instru- ments, iron, candles.</p> <p>£145,000.</p>		Nil.
<p>Flour, bread, and grain; provisions — fish, beef, pork, dried fruit, &c.; tobacco; timber; hard- ware, brushware, turnery, agricultural implements, machinery, oars; drugs; notions.</p> <p>£420,000.</p>	United States.	<p>Coal, linen and dra- pery, spirits, sundries.</p> <p>£3,500.</p>

IMPORTS.	COUNTRY.	EXPORTS.
Tea, tea-oil, sugar, Chinese provision, pepper and spices, opium, matting, baskets, toys, fire-works. £440,000.	China.	Nil.
Sugar and molasses; coffee; cigars; matting, cordage and rope, bags. £200,000.	Manila.	Nil.
Arrowroot and sago; coffee, rice, sugar, pepper and spices, opium; rattans and canes; books and paper, linen, brushware, bags and sacks, jewellery. £145,000.	India and East Indian Islands.	Nil.
Limejuice, beche-le-mer, sperm oil, black oil, whalebone, cocoanut oil, tortoise shell, timber, guano, arrowroot and sago. £48,000.	South Sea Islands and New Caledonia.	Linen and cotton, arms and ammunition, grain, biscuit, flour, oilmen's stores, provisions, live stock, sugar, tea, tobacco, wines and spirits; soap; timber, carts and drays, iron; coal; stationery. £86,000.
Sugar, rum, and dried fruits. £75,000.	Mauritius.	Nil.

IMPORTS.	COUNTRY.	EXPORTS.
Apparel, linen, cotton, woollen and silk manu- factured goods, millinery, boots and shoes; jewel- lery; watches and clocks; books.	Suez and Aden.	Gold, coin and bars; silver.
£86,000.		£330,000.
Flour and grain. £42,000.	Chili.	Nil.

86. INLAND AND COASTING TRADE.—The coasting and inland trade consists in distributing the imported articles and the productions of the various districts of the colony. Sydney is the centre from which this commerce extends its branches. The goods imported are carried by drays into the interior, and are laden on their return with wool, hides, grain, or other produce. In the same way the steamers and small coasting vessels convey merchandise to the various maritime settlements, and are then freighted with local products. The goods despatched from Sydney are principally various manufactured articles, flour, wines, spirits, fermented liquors, tobacco; cedar-wood furniture. The products of the interior which are forwarded to Sydney are gold, wool, horses, cattle, sheep, hides, hay, grain, potatoes, fruit, and timber; and, by sea, cedar and other woods, grain, live stock, butter and cheese, shells for lime-burning, and coal. A large trade is also carried on between New South Wales and the contiguous colonies in horses, cattle, and sheep.

CHAPTER IX.

INTERNAL COMMUNICATION.

87. GENERAL CHARACTERISTICS.—The means by which communication may be carried on between the various parts of a country, is a matter of great importance as regards its material prosperity and advance in civilisation. Where such communication is difficult or infrequent, there is a strong tendency to retrograde, unless natural obstacles can be overcome by skill and labour. Communication is of a two-fold nature—that intended for the conveyance of goods, and that adapted to the transmission of intelligence. The means themselves are navigable rivers, canals, common roads, railroads, and electric telegraphs. New South Wales is unfortunate in not possessing some common natural advantages, and in suffering from some serious obstacles to effective internal communication. For example, its navigable rivers are insignificant in extent compared with the vastness of its territory. Again, its principal mountain chain is situated near the coast, and is so rugged in its character that, for many years, communication between the two slopes was impossible, and is still difficult. Much has been done, however, to remove these disadvantages, and to extend and perfect the means of communication.

88. NAVIGABLE RIVERS.—Most of the rivers on the eastern slope are more or less navigable, especially for vessels of small tonnage. The Clarence is navigable for vessels of large size for seventy miles from its mouth, and the Hunter for fifty. At certain seasons, the Murray, Darling, and Murrumbidgee are navigable for vessels of light draught for distances of about 1000 and 600 miles respectively; and when some of the obstructions have been removed, the navigation will be rendered less dangerous, more certain, and more frequent. Even now, the opening of these rivers has proved of great benefit to the districts through which they flow, by providing an outlet for produce and a means of obtaining supplies. No *canals* have yet been formed in New South Wales, excepting perhaps a short one joining the Shoalhaven and Crookhaven Rivers. It is not probable, from the scarcity of water and high price of labour, that canals will ever be extensively used in this colony, certainly not for many years to come.

89. COMMON ROADS.—Immense sums of money were expended in former times upon the *common roads* of the colony, but until very recently they were little better than tracks cleared of timber. Great efforts have been made of late years to improve the highways, and notwithstanding great difficulties from want of proper materials and labour, and the destruction of bridges by floods, a sensible advance has been

made. These roads are divided into three main lines named respectively the Great Southern, the Great Western, and the Great Northern Roads. The two former commence from Sydney: the last from Maitland. The Great Southern Road takes a general but irregular, southerly direction, passing through Campbelltown and Berrima to Goulburn. Thence it proceeds by way of Yass and Gundagai to Albury. Roads branch off from the main line from Goulburn to Braidwood, and from the same place to Bombala, passing through Cooma and Queanbeyan. The Great Western Road passes through Parramatta and Penrith, and across the Blue Mountains to Bathurst, whence it is continued through Orange to Wellington and Dubbo. This road leads through the celebrated pass of Mount Victoria, and is, in some places, cut out of the face of the mountain, and in others, carried across vast chasms on immense masses of masonry. The Great Northern Road starts from Maitland through Singleton, Muswellbrook, and Murrumbidgee across the Liverpool Range to Tamworth, then across the Moonbi and New England Ranges to Armidale. Many important branch roads lead in various directions from the main lines, and where *roads* properly so called terminate, *tracks* are used which receive no attention and undergo no repairs. The main roads and some of the branch roads are now provided with substantial bridges over the most important streams; but when rivers intersect the tracks, they can only be crossed by fording. So

notion may be formed of the extent of the roads and tracks in common use from the fact that the total length of the various lines travelled by the post exceeds 11,000 miles.

90. RAILWAYS.—Three lines of railway have been commenced. These are respectively termed the Great Southern, the Great Western, and the Great Northern Railways. The first of these is designed ultimately to connect Sydney with Albury. At present, it is intended to proceed to Goulburn only, and will shortly be finished as far as Picton—about fifty miles. The Great Western Railway branches from that just described near Parramatta, and is completed to Penrith, about twenty miles. The design of this line is to connect Sydney with Bathurst, but, as the engineering difficulties in the way of constructing a railroad across the Blue Mountains are of a formidable character, there is no present likelihood that the purpose will be speedily effected. The Great Northern Railway begins at Newcastle, passes through Maitland to Singleton, to which place it is nearly finished, a distance of about sixty miles. Ultimately, it is proposed to carry this line to Murrurundi, from which place further advance will be checked by the Liverpool Range. The total length of railway completed—or about to be—is 130 miles.

91. ELECTRIC TELEGRAPHS.—The electric telegraph is one of the most important means of communication. Each of the main lines of road has its telegraph line

to correspond, and there is full telegraphic communication between Sydney and the neighbouring colonies of Queensland, South Australia, and Victoria. The following are the principal telegraphic lines in operation, or in progress :—

1. *The Southern Line*, extending from Sydney to Albury, with branches to—1. Kiama; 2. Braidwood; 3. Kiandra; 4. Wagga Wagga, Deniliquin, and Echuca.

2. *The Western Line*, extending from Sydney to Forbes, *via* Bathurst, with branch through Sofala, to Mudgee and Wellington.

3. *The Northern Line*, extending from Sydney to the Northern boundary of the colony, with branches—1. To Newcastle; 2. To Scone; 3. From Tenterfield to Grafton.

The total number of miles of telegraph in operation is above 2500; and when the extensions now in course of formation are completed, that number will be increased to about 3000 miles.

92. MARITIME ROUTES.—It is proper to notice here the means of communication which exist between localities on the seaboard or on the coast-rivers. Large numbers of coasting vessels are employed in the conveyance of goods and passengers between these places; and three distinct lines of steamers are engaged in similar traffic. They are the Clarence River line; the Hunter River; and the Illawarra and South Coast line. These are exclusive of steamers employed in the intercolonial trade.

CHAPTER X.

POLITICAL AND SOCIAL ARRANGEMENTS.

99. New South Wales being a British colony, is a dependency of the British Crown, and its inhabitants enjoy all the advantages and privileges of British subjects. Unless superseded by the enactments of the local Legislature, the laws are identical with those of England. All the forms and principles of the British Constitution, and all the British legal usages, are in force in the colony; and British money, weights, and measures are universally adopted. The Sovereign of Great Britain is the supreme ruling power, and appoints the Governor of the colony; but, practically, the local government may be regarded as independent, inasmuch as the home authorities interfere only on subjects of Imperial, as distinguished from purely Colonial, interest.

THE LEGISLATURE. -- The Legislature of the colony is composed of two branches, named respectively the Legislative Council and the Legislative Assembly. The constitution of the former has not yet been finally determined; at present the members are nominated by the Executive, but it is probable that seats in the Council will eventually be obtainable by some form of election. Members of the

Assembly are elected by the people, the suffrage being of the widest possible description. There is no restriction in the choice of candidates, except such as are obviously necessary for the welfare of the country, as, for example, the requirements that a member shall be of full age, or that he shall not be the subject of any foreign State. For representative purposes, the colony is divided into electoral districts, each, according to its population and importance, sending one or more members to the Assembly. The electors include all men of adult age in the district, provided they have resided there not less than six months and are subject to the monarch of Great Britain and Ireland. The votes are given by ballot. All laws established in the colony are enacted by the two Houses, but the Assembly claims the sole power to interfere in matters of taxation and expenditure of public money. + 2 -

94. **THE EXECUTIVE.**—The Executive branch of the Government is administered by the Governor and the Ministry. The Governor is the representative of the Queen, from whom he receives his appointment, and it is in his name that all the public acts of the Executive Government are performed. The Ministers are his responsible advisers, without whose concurrence or recommendation, he has little real power to act. Should any of the public acts of the Governor be of a questionable kind, the Ministry are liable to be called to account by the Assembly, and it is for this, among other reasons, that they are called "responsible." At present there are four Ministers,

who are respectively entitled the Principal Secretary, the Treasurer and Secretary for Finance and Trade, the Secretary for Lands, and the Secretary for Public Works. These officers are charged with the performance of all the business of the country, and are responsible for the supervision and control of the various subordinate departments. For example, the Principal Secretary transacts all business connected with naval and military matters, foreign correspondence, the administration of justice, law and police, registration, ecclesiastical establishments, public education, and other matters of internal arrangement. The Treasurer is charged with the business connected with the financial affairs of the colony, including the questions of taxation, collection of revenue, the public debt, trade and commerce, postal arrangements, and navigation. The management of the Public Lands, including those occupied for mining purposes, is confided to the Secretary for Lands; and the construction of roads, railways, telegraphs, and bridges; the improvement of river navigation, ports and harbours, formation of docks and wharfs, and the erection of public buildings and works of defence, belong to the Department of the Secretary for Public Works.

95. ADMINISTRATION OF JUSTICE.—For the administration of Justice, there have been established a Supreme Court, District Courts, Courts of Quarter Sessions, and Courts of Petty Sessions. The first-named includes three Judges, who try suits in Sydney,

and visit the country districts periodically to hold Assize or Circuit Courts. The places at which such courts are held are Bathurst, Goulburn, and Maitland. Litigents have, within certain limits, the right of appeal from the decision of the Judges to the Privy Council of England. There are five District Court Judges, who hold courts for the trial of less important cases, in nearly all the more important towns in the colony. The same Judges, assisted by the local Magistracy, hold the Courts of Quarter Sessions for the trial of criminal cases in all the principal country towns. The Courts of Petty Sessions for the trial of light offences, are held by the local magistrates in about a hundred localities.

96. REVENUE.—The public revenue of the colony amounts to about £1,500,000 per annum. It is derived chiefly from the sale and rent of the public lands, and from custom's duties, from gold duties, licenses, postage, railway and telegraphic receipts. The ordinary expenditure reaches to about £1,300,000 per annum, though a large additional sum is expended in the construction of railways and other public works. This additional expenditure is defrayed from the proceeds of loans which remain as a public debt, amounting at present to about £4,000,000.

97. RELIGION.—The religious denominations of the colonists are various. There is no dominant religion, and no one denomination specially supported by the State. The professors of all forms of religious belief,

therefore, possess equal civil rights, and enjoy perfect toleration and freedom. The following are the relative proportions which the various denominations bear to each other:—

Church of England	45·7	per cent.
Presbyterians	9·9	„
Congregationalists	1·5	„
Wesleyans	6·7	„
Other Protestants	2·8	„
	66·6	
Roman Catholic	28·2	
Hebrews	0·5	
Mahommedans and Pagans ..	3·6	
Others	1	

98. EDUCATION.—The public means of education in the colony are—the Primary Schools, the Grammar School, and the University with its Affiliated Colleges. The Primary Schools are sufficiently numerous, but are, for the most part, confined to the coast and table lands, so that residents in the great interior plains have no public provision for this branch of education. The instruction given in Primary Schools is intended to comprise the elements of what is called an *English* education—*i.e.*, to the exclusion of the classical languages. The next grade of instruction is supplied by the Sydney Grammar School, founded and supported by the State, chiefly with a view to the teaching of classics and mathematics preparatory to the University course. Six scholarships at the Grammar School, averaging £20 in yearly value, are open to

competition by all persons below the age of twelve years. The University is governed by a Senate, at the head of which is a Chancellor. There are Professors of Classics, Mathematics, and Physics, and Readers in Law and French. Scholarships in the University of the annual value of £50 each, are awarded to successful competitors in the examinations. Eight of these scholarships have been provided by the Senate from the public endowment, and three others have been instituted by private persons. Of the Affiliated Colleges, only two have as yet been established,—St. Paul's for members of the Church of England, and St. John's for Roman Catholics. In addition to the public provision for education, there are numerous private schools of various grades for both elementary and superior instruction.

CHAPTER XI.

TOPOGRAPHY.

99. TERRITORIAL DIVISIONS.—New South Wales, so far as surveyed, is divided into *counties*, of which about fifty have been named and defined. But as this division is of no practical use, geographically or otherwise, it is not necessary to describe the counties in detail. A more useful division is that into Police Districts which coincide, to a considerable extent, with the Electoral Districts. There is a popular division of the country into the Coast, Southern, Western, and Northern Districts; but their respective boundaries are undefined. This division will be, in some measure, observed in the following description of the principal towns of the colony. It is necessary to observe that, of the numerous towns springing up in all directions throughout the colony, a large number are of recent formation, and are, so to speak, yet in their infancy. Few of them are, therefore, of much present importance, neither do they afford much material for remark or description.

100. TOWNS IN THE COAST DISTRICT.

Casino.—Commencing at the Richmond River district on the north, we find several small villages springing up, of which the most flourishing is Casino, situated some distance up the stream, in the centre of a fine pastoral and agricultural country.

Ballina, at the mouth of the Richmond, is likely to become a flourishing seaport town.

Grafton, at the head of the navigation of the Clarence, is the capital of a magnificent agricultural and pastoral district. It is divided by the river into North and South Grafton, as it occupies both banks. Population, 1400.

Kempsey, the most important place in the district of the Macleay River, has a population of about 230 persons, including the eastern and western divisions.

Port Macquarie, a seaport town situated at the mouth of the Hastings River. Like most of the harbours on the coast formed by the estuaries of rivers, that of Port Macquarie is obstructed by a bar which greatly interferes with its convenience for purposes of trade. The town and neighbourhood are remarkable for their genial climate and salubrity which render them suitable places of resort for invalids, especially persons suffering from certain forms of consumption. Population, 500.

Cundletown, in the Manning district, on the left bank of that river. It has a population of 150 persons.

Newcastle, the second seaport in point of importance in the colony. At this place the Hunter expands into a broad estuary, forming a very secure harbour, which has been improved by artificial means. Suitable wharfs have also been constructed to accommodate the trade of the locality. From its position at the entrance to the river, and its proximity to the most active coal-mining district in the colony, Newcastle is a place of great trade. Steamers of considerable power and tonnage ply daily between this port and Sydney, and as many as 1000 vessels,

with an aggregate stowage of 200,000 tons, have been known to enter and leave the port in one year. The great article of trade is coal, of which about 300,000 tons are exported annually or conveyed to Sydney; but the agricultural products of the neighbouring district, and the wool and tallow of the western interior, are also shipped here in large quantities. Newcastle possesses a lighthouse at the entrance of the harbour, and gives its name to a bishop's see in connection with the Church of England. Population (of city and suburbs), 3722.

Murrumbidgee.—Following the course of the river Hunter from its sources in the Liverpool Range, the first village at which we arrive is Murrumbidgee, situated on the River Page, at the foot of the mountains. Population, 300.

Scone, on another tributary—Dartbrook—has a population of 350.

Mussellbrook, on the upper course of the Hunter itself, is a flourishing town, with a population of 600. The three places last mentioned owe much of their importance to the fact that they are situated on the Great Northern Road leading from the Hunter District to Liverpool Plains, New England, and the north-west interior.

Murrumbidgee, on a tributary of the Goulburn. Population, 170.

Wollombi, on the brook of the same name, is a small village, forming the local centre of population and trade of an agricultural district. Population, 230.

Singleton is the local capital of an extensive agricultural district, and is also an important point on the Great North Road. It is situated on the right bank of the Hunter, which

is here a considerable stream. This will be a somewhat important station on the Great Northern Railroad, which will shortly be completed as far as Singleton. Population, 1000.

West Maitland is the most important inland town in this district. The town is built in an irregular manner on the alluvial flat through which the Hunter flows on its winding course. Being but slightly elevated above the bed of the river, West Maitland is liable to inundation; and it has more than once happened that the floods have risen thirty feet above high-water mark, covering the whole of the township, and rendering it necessary for the inhabitants to escape from their dwellings in boats. Notwithstanding this and some other serious disadvantages, the town continues to flourish, and has become a place of great trade, especially with the northern and western interior. In addition to places of worship, West Maitland possesses several public institutions—a Hospital, a School of Arts, and others. Population, 5694.

Maitland.—Adjoining West Maitland, but separated from it by Wallis' Creek, and on the same bank of the river, though lower down the stream, is Maitland, or, as it is popularly called, East Maitland. Though secure from floods, for the most part, it is not so populous as West Maitland, and does not possess the same commercial advantages. The principal public building is a large gaol. Population, 1834.

Morpeth, a few miles lower down the river, is the head of the navigation of the Hunter, and is the station from which the steamers ply which run between Sydney and the Hunter District. Coal is abundant in the vicinity, and there is a large

extent of agricultural land contiguous to the town. It consequently bids fair to become a place of some commercial importance, especially when connected with the Great Northern Railway. Population, 1175.

Hinton, at the junction of the Hunter and the Paterson. Population, 351.

Paterson, on the river of that name, is a village of some local importance. Population, 241.

Dungog, on the upper course of the Williams River, has a population of 458 persons.

Clarence Town, lower down the stream. Population, 300.

Raymond Terrace, at the junction of the Hunter and the Williams. Population, 535.

Stroud, near the Karuah River, which falls into Port Stephens, is the capital of the Australian Agricultural Company's estate. Population, 398.

Gosford—East and West, two small villages, situated on Brisbane Water, an arm of Broken Bay. The district is agricultural and timber-producing. Population, 145 and 138 respectively.

SYDNEY, the capital of New South Wales, is situated on the southern shore of Port Jackson, about seven miles from the entrance. The principal portion of the city occupies two elevated and parallel ridges and the intervening valley, and is nearly enclosed by the waters of the harbour; but besides this peninsular part, an extensive additional tract is included within the boundaries. The whole area of the city is about 2000 acres. Owing to its peculiar position, the

appearance of the city from the harbour is very fine. The more modern parts of the town are well built, there being abundance of excellent building stone available in the immediate vicinity; but the older parts are irregular and somewhat mean and unsightly. Great improvements have been effected in this respect of late years, and some of the public buildings, banks, and shops vie in architectural beauty and excellence of construction with similar erections in European countries. Among the public buildings, the more prominent are—*Government House*, the residence of the Governor; *Public Offices*, such as the Treasury, Custom House, General Post Office; *Churches*, of which St. Andrew's and St. Mary's Cathedrals, and St. George's Church, are the most conspicuous for architectural excellence; *Banks*, to which may be added the Exchange; *Scientific and Educational Institutions*: the Observatory, Museum, Library, School of Arts, Grammar School, University, and the two Affiliated Colleges—St. Paul's and St. John's; *Charitable Institutions*: the Infirmary, and the Benevolent Asylum.

The principal streets of Sydney run from north to south, being crossed by others at right angles. They are named from the members of the Royal Family and of the Cabinet of the period when the city was laid out. George-street preserves the name of the sovereign; Sussex, Kent, Clarence, York, Cumberland, and Gloucester-streets, those of the royal dukes; and Castlereagh, Pitt, Bathurst, and Liverpool Streets,

those of ministers. The more modern portions of the city are named after no particular system. In general, the streets are well formed and paved, and lighted with gas.

Sydney derives some of its importance from the fact that it is the seat of government and the place of meeting for the Legislative Chambers. Here also are the superior law courts and the head-quarters of the police administration.

The trade of Sydney, both foreign and inland, is very great, as nearly all the exports and imports of the colony pass through it. There are also some manufactures, such as machinery, woollens, leather, vehicles, and shipbuilding, in addition to the ordinary domestic manufactures—soap, candles, dyeing, &c. For the convenience of ships requiring repairs, there are two Patent Slips and two Dry Docks, capable of receiving vessels of large tonnage.

Among the points of interest not previously noted, are the Botanic Gardens, the Domain, and Hyde Park, places for public instruction and recreation.

The population of Sydney and the adjacent suburbs is 79,630.

Parramatta, situated at the head of a prolongation of Port Jackson, and named the Parramatta River, is the second town of the colony in point of population. It was founded shortly after the original settlement at Sydney. Several public establishments are located in Parramatta, as Orphan Schools, Protestant and Catholic, Hospital, Lunatic Asylum, and Gaol. It returns two members of the Assembly. Population, 5577.

Liverpool, situated on George's River, was formerly of some importance, but has declined of late years. The Southern Railway passes through the town, which contains a hospital and a benevolent asylum. Population, 1053.

Campbelltown.—Following the Southern Railway at a distance of twelve miles from Liverpool, we arrive at Campbelltown, which has a population of 938.

In the Illawarra District the principal towns are—

Wollongong, in the neighbourhood of which coal-mining is extensively carried on. This occupation and that of dairying supply two of the staple exports of the district—coal and butter. Population of the municipality, 1397.

Kiama is beautifully situated farther to the south. The neighbourhood is fertile and picturesque. Dairy produce is raised in large quantities. Population of town, 741.

On the South Coast—

Moruya, on the river of the same name, is the centre of a fine agricultural and mining district. Population, 250.

Bega, on the Bega River, is the capital of a fertile district suited for both agriculture and pasturage. Population, 625.

Pambula, near Lake Merimbula. Population, 186.

Eden, on the shores of Twofold Bay, is a place of some trade. Formerly, whale-fishing was carried on in the Bay to a considerable extent, but of late years this branch of industry has decayed. Population, 482.

Berrima, on the Wingecarribbee River—a tributary of the Wollondilly, was a place of considerable note in former times, but is now of less importance. It contains an extensive gaol. Population, 394.

Camden, another village, also situated upon a tributary—the Cowpasture or Nepean—of the same river, is the centre of a fine agricultural district noted for its wheat. Population, 685.

Penrith.—Below the junction of the Wollondilly and Nepean, where the united streams receive the latter appellation, is Penrith, a place of some local importance. It is connected with Sydney by the Great Western Railway. Population, 710.

Richmond, lower down the stream where it assumes the name of Hawkesbury, a pretty village. Population, 943.

Windsor, a considerable country town. A tramroad to connect this place with the Great Western Railway is in course of construction. In the immediate neighbourhood is the salubrious district called the Kurrajong, on the east slope of the Blue Mountains. Population, 1900.

101. TOWNS ON THE TABLE LANDS.—NORTH TABLE LAND. The most important town in this portion of the colony, and the capital of the Northern District generally, is Armidale. It is situated on one of the head waters of the Macleay River, and at an elevation of 3600 feet above the level of the sea. The climate is consequently cold as compared with that of the Coast Districts. Proximity to the Northern Gold Fields, and to extensive tracts of good agricultural land, will probably make Armidale a place of some importance in future. Population, 910.

Tenterfield, near the northern boundary of the colony, is a rising town, with a population of 676.

Glen Innes on the Great Northern Road, midway between Armidale and Tenterfield. Population, 288.

Inverell, on the Macintyre River. Population, 177.

Bendemeer, on the Maluerindi River, at the point where it is crossed by the Great Northern Road.

Bundarra, a small village on the River Bundarra, a tributary of the Gwydir.

Walcha, on the Apsley River, in a fine agricultural district. Population, 355.

SOUTH TABLE LAND.

Goulburn, on the Mulwarree Creek, an affluent of the Wollondilly River, may be regarded as the capital of a very important district. It is beautifully situated on the edge of some extensive open downs, called the Goulburn Plains. It is a flourishing town, with a population of 3241.

Braidwood, on a tributary of the Shoalhaven River, is the centre of an important mining, agricultural, and pastoral district. From its elevation above the sea level, 2550 feet, the climate of this place is cold compared with that of most parts of the colony. Having direct communication with Nelligen, a port on the east coast, and being situated on the high road from the Monaroo district, Braidwood will probably become a place of importance. Population, 959.

With the exceptions just noted, the towns in the Southern Table Land all lie on the west of the Dividing Chain. They are, therefore, susceptible of more systematic arrangement than those of the North Table Land. The most convenient mode, perhaps, will be to take them in the order in which they occur in the several river basins.

Bathurst, an important town and capital of the Western District of the colony. It stands on a gentle slope on the left bank of the Macquarie, which is here crossed by a fine bridge. It is surrounded by the celebrated Bathurst Plains (or *Downs*), consisting of a large extent of naturally clear land of an undulating character. The streets are well laid out, and the houses have not so much of the straggling appearance common to country towns. Being at an elevation of 2300 feet above the sea, the climate is cooler than that of the coast district, and is considered to be highly salubrious. Population, 4042.

Sofala, on the Turon River—a tributary joining the Macquarie on the right bank—is the capital of an extensive gold-mining district, and was formerly a place of considerable importance. With the decline of the Turon Gold Field, Sofala has greatly decayed.

Orange, situated some distance from the left bank of the Macquarie, is a rising town in the centre of a fine agricultural district. Population, 581.

Mudgee is an important town, situated on the Cudgegong River, which flows into the Macquarie on the right bank. Mudgee is surrounded by mining, pastoral, and agricultural districts, and is a place of considerable trade. Population, 1507.

Wellington, at the junction of the Bell River with the Macquarie, is an old settlement, in a fertile and beautiful district. Population (including Montefiores, on the opposite side of the Macquarie), 354.

Dubbo, lower down the Macquarie and on the right bank, is a thriving town in the centre of a rich pastoral district. Population, 381.

In the basin of the Lachlan are—

Gunning, a small village near the head waters of the river. Its chief importance is derived from the fact that it is situated on the Great Southern Road. Population, 192.

Tuena, on the Abercrombie, in a gold-mining district. Population, 124.

Boorowa, on the river of the same name. Population, 320.

Carcoar, on the Belubula River. Population, 374.

Cowra, on the right bank of the Lachlan. Population, 193.

Forbes, in the centre of the Lachlan Gold Fields.

In the basin of the Murrumbidgee are—

Yass, a thriving town on the River Yass—which flows into the Murrumbidgee on the right bank. Population, 1123.

Binalong. Population, 210.

Queanbeyan, on the river bearing the same name. Population, 526.

Bungendore, in the basin of Lake George. Population, 195.

Cooma, on a small tributary of the Murrumbidgee, is regarded as the capital of the Monaroo District. Population, 369.

Jugiong, a village on the right bank of the Murrumbidgee. Population, 127.

Gundagai, on the right bank of the Murrumbidgee. The former township was destroyed by a flood in the river, in the year 1852, when about seventy lives were lost.

Tumut, on the Tumut River, in a fine agricultural and gold-mining district. Population, 432.

Adelong, on the Adelong Creek, in a gold-producing district noted for its quartz reefs. Population, 186.

In the basin of the Snowy River is—

Bombala, on the river bearing that name, an important town. Population, 405.

102. TOWNS IN THE INTERIOR PLAINS.—The towns on the great plains are neither numerous, nor, with few exceptions, important. They consist, for the most part, of a store or two, an inn, and the residences of a few mechanics, of whom a blacksmith is commonly one. These towns—or villages—are supported either by the expenditure of persons travelling, or of residents in the surrounding districts who have engaged in pastoral pursuits. The following are the most worthy of note :—

Warialda, situated on a small creek running into the Gwydir River. Population, 110.

Bingera, a small village on the River Gwydir, near the gold-fields called by the same name.

Tamworth, on the Peel River, is a considerable town, deriving its importance from its position on the Great Northern Road, its proximity to the gold-diggings on the banks of the Peel and its affluents, and its vicinity to a large tract of rich pastoral country. Population, 654.

Gunnedah, a village situated on the Namoi River, near its junction with the Mooki. Population, 247.

Wee Waa, a small village lower down the Namoi.

Wallgett, at the junction of the Namoi and Barwan.

Mundoran, a small village on the Castlereagh River.

Coonamble, on the same river, but lower down.

Condobolin, on the Lachlan River.

Booligal, on the same river.

Ozley, or *Towpruck*, on the same river, at no great distance from its junction with the Murrumbidgee.

Wagga Wagga consists of two parts, lying on the north and south banks of the Murrumbidgee. It is a place of considerable importance. Population, 627.

Hay, at Lang's Crossing Place on the Murrumbidgee. Population, 172.

Balranald, near the junction of the Murrumbidgee and Murray. Population,

In the basin of the River Murray are—

Albury, an important town on the upper Murray. The land in the neighbourhood is well adapted for cultivation, and is especially suitable to the growth of the vine. Large quantities of wine are annually produced in the surrounding district, and this article promises in time to become one of the staple exports of that portion of the colony. The high road from Sydney to Melbourne passes through Albury, and crosses the Murray at this point by a handsome bridge. In the vicinity of Albury are several villages, and the whole district is gradually rising in population and importance. Population (of the township), 980; of the whole municipality, 1600.

Deniliquin, situated on the Wakool River, an ana-branch of the Murray. It is a great *entrepôt* for the sale of cattle and sheep, and is the centre of an extensive pastoral district, being surrounded by vast level plains. Population, 632.

Moama, on the Murray, is a noted crossing place. Population, 144.

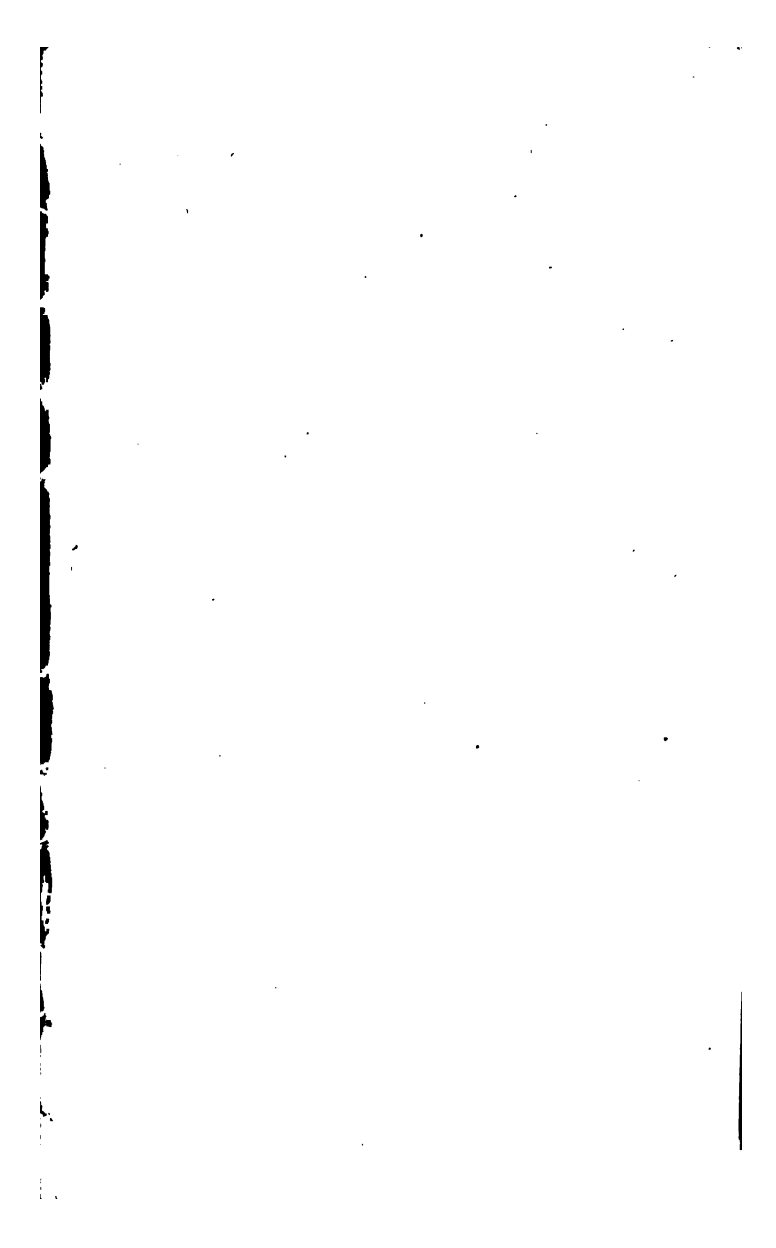
Moulamein, on the Edward—one of the numerous ana-branches of the Murray—has a population of 72 persons.

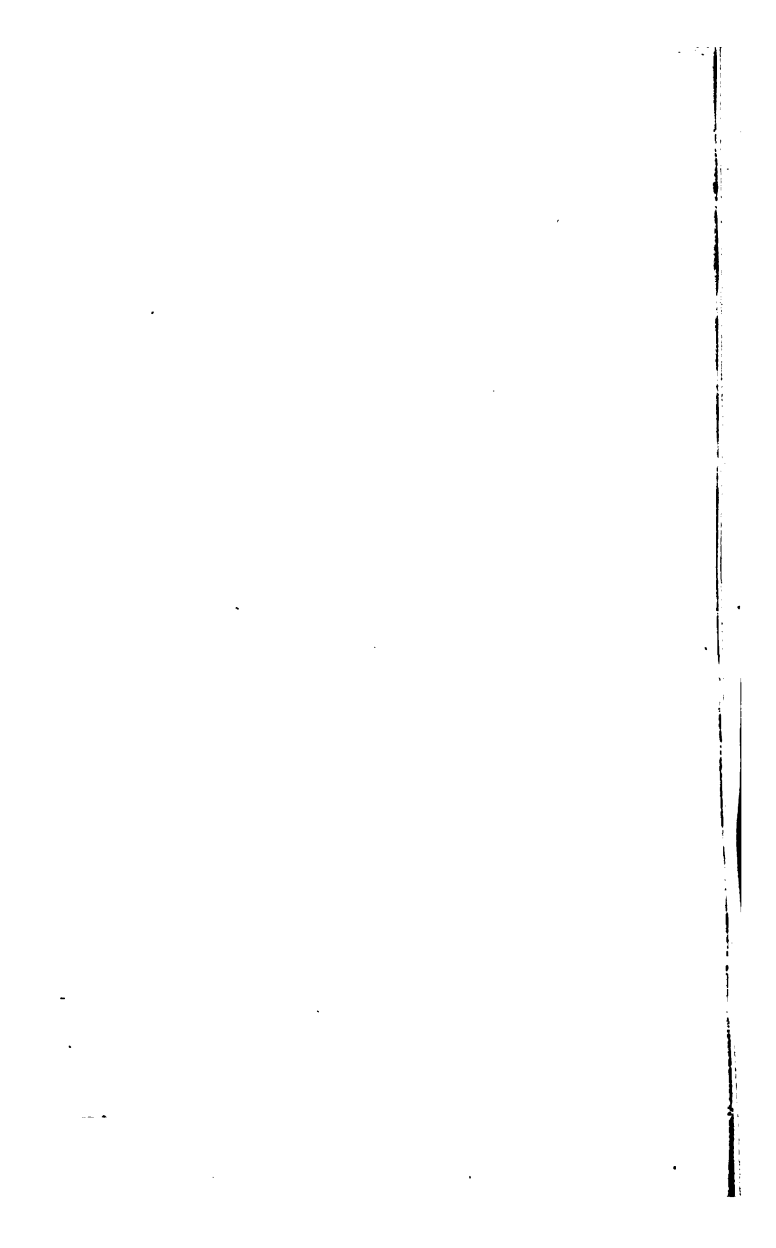
Wentworth, at the junction of the Darling and Murray. Population, 222.

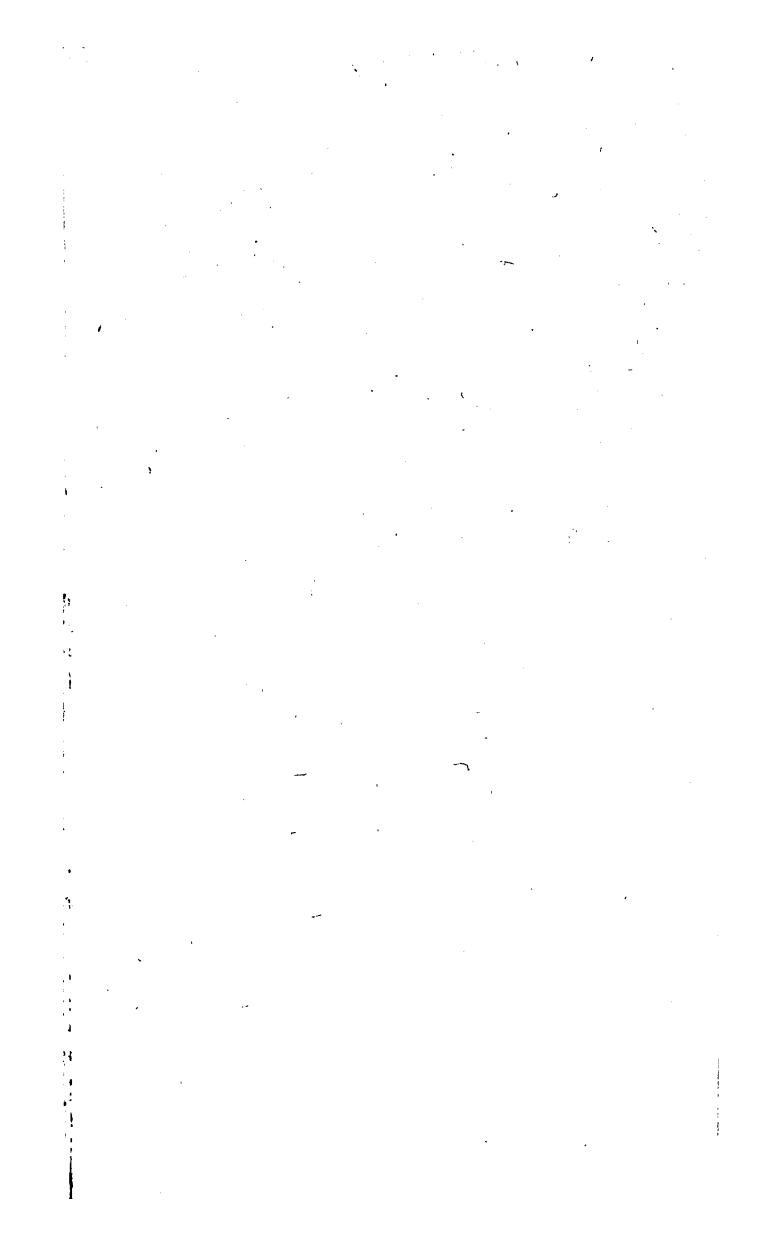
Bourke and *Menindie* are incipient townships on the Darling River.

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